V.4. #22
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# CURRENT NOTES AND COMMENTS

Commencing at 5:45 p. m. on Monday and finishing at 1:53 a. m. Wednesday a vehicle made by the Baker Motor Vehicle Co., of Cleveland, propelled by a battery made by the Porter Storage Battery Co., of Chicago and Waukegan, Ill., and driven by F. C. Phillips, president of the Elwell-Parker Electric Co., of Cleveland, eclipsed all previous records for electrics by making a run of 187½ miles without recharging the battery.

Mr. Parker started from the Great Northern Hotel, followed by H. C. Porter, the maker of the battery, E. A. Laughlin and V. A. Reitz in other vehicles. He was accompanied by at least two machines throughout the trip. Most of the distance was made on the boulevards. No attempt was made to hurry, the intention of the operator being to demonstrate the capacity of the battery under normal conditions of travel. It is said that a private test was made in Cleveland recently and that on that occasion the vehicle ran 151 2-10 miles. The battery weighs 600 pounds and the vehicle the same.

Further details of this extraordinary performance and the vehicle which accomplished it will appear in a subsequent issue.

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There are persistent rumors that the makers are dissatisfied with the dates selected for the automobile show at Madison Square Garden and that, although space has been allotted to all the principal concerns few have actually signed contracts. Last week a gentleman connected with the manufacturers' association stated that there was talk of a change of dates. Another gentleman said it was true that there had been talk about November being a poor time. Mr. Chamberlain, of the A. C. A. said he had heard nothing of the sort and that practically all of the leading makers had taken space. Secretary Young, of Madison Square Garden, said he has heard nothing about such a thing. The Garden, he said, is engaged from October 1 to the middle of May, so that a postponement would be impossible.

This week the story has been renewed. Mr. Young reiterated his former statement and said that allotments had been made by Mr. Sanger in accordance with signed applications. He even showed a representative of this paper the application of one maker who had previously denied that he had made a contract. All of the main floor people, Mr. Young said, had signed contracts except the Locomobile, who were awaiting the return of President Davis.

There are two explanations of the story. The first is that November is, as a matter of fact, a poor time to hold the show and the second is that some of the makers are dissatisfied with the spaces allotted them. It is said that a number of makers of gasoline vehicles were much annoyed and that one of them insisted on having a certain space or none at all.

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### Sale of French Vehicles

In defending road races in France, the Auto Velo says that since the Paris-Berlin race the makers of the Mors machine have received orders for 180 vehicles, amounting in value to between five and nine million francs ($1,000,000 to $1,800,000), and the makers of the Panhard about the same amount. The argument is that races promote interest in the industry and are therefore good for the country at large.

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### Endurance Run Details

The contest committee in charge of the endurance run met last Wednesday. Reports were received from W. C. Stearns, the A. C. A. surveyor, who is laying out the endurance run course, and a large map is being prepared on the basis of his reports. Several detours have been suggested by him to avoid bad roads. One

of them is from Fishkill village to Matteawan and Fishkill Landings, thence to Wappinger's Falls, which will add 10 miles to the original course. He also recommends that the hill climbing contest be transferred to Nelson Hill between Sing Sing and Peekskill instead of the hill near Little Falls originally intended. The new hill is a steep two mile grade, furnishing an ideal test. This is the hill which, during Mr. and Mrs. Shaw's late ride was found covered with loose stone and which the tourists strongly advised others to avoid.

Harland W. Whipple left on Thursday on an inspection tour. He will arrange for placing controls and checking stations and select official headquarters.

The entries close August 31. The fee is $50 for all automobile classes and $25 for motor cycles. To force immediate entry 10 per cent will be added to the entrance fee after August 15.

Albert C. Bostwick, the A. C. A. member of the Pan American Automobile Sports committee, is now in Buffalo to complete arrangements for the Buffalo-Erie race. No particulars or conditions can be given out until he makes his report in a day or two.

## The Trade and the Clubs

As has been the case in many automobile clubs, there are unmistakable signs that the trade element is creeping into the Buffalo Automobile Club and it is already charged that its president is interested in the sale of vehicles. This feeling is to be regretted as the gentleman in question has undoubtedly done a good deal for automobilism in Buffalo. It is possible that all clubs will have the trade question to grapple with as has been the case in New York. The Buffalo Automobile Club, which is located in the Hotel Lenox building, is a neat and well appointed resort and its members will extend a warm welcome to tourists and others who go to the Pan-American.

## Edison Not a Competitor

Although the Edison battery arrived at the Pan-American exposition in ample time to be submitted to the judges Mr. Edison declines to become a competitor and the cell is now on exhibition with that distinct understanding. When this cell was sent to the Pan-American it was not Mr. Edison's intention that it should be entered competitively with the other types of batteries, inasmuch as they were not in position to show it working practically. Before the exposition closes it is the Edison company's intention to exhibit some of these new batteries complete and in actual operation.

The battery cell that is now on exhibition is 5 inches wide, 1½ inches deep and 12 inches high from the base to the terminals. Its capacity is ⅓ horse-power, 100 ampere hours, and its weight is 5¾ pounds. The cell is nickel plated, while the insulation is perforated hard rubber 64-100 inch thick. It has eight plates or grids, each containing 24 pockets. The thickness of the complete plate is 1-10 inch. The charging rate is 1.8 volts. The pockets containing the compound are 3-1000 inch thick, of nickel plated perforated crucible steel. The negative plate is nickel and the positive plate iron. There is no alkaline solution in the cell on exhibition. This fluid is not an element of the battery, simply a conductor. In the regular construction of the batteries it is estimated that 60 plates constitute 1-horsepower, each plate weighing 1 pound.

## Select Repairers With Care

The man who will undertake to repair anything from an electric alarm to an umbrella and who will mend a lawn mower with as much neatness and dispatch as he will a sewing machine has added to his long list of accomplishments and duties that of automobile repairer. An Age man at Geneva, N. Y., inspected a noted repair shop in the center of the town, which undertakes to repair almost anything. Something new has been added to the sign since the writer's last visit and that something looms up in fresh paint: "Automobiles repaired while you wait." There are signs that the Buffalo tinker will soon add automobile repairing. The bicycle end of the business is well cared for. One man has on his sign "Bicycles repaired while you sleep" while a Cold Springs genius ad-

vertises "Horseshoeing and bicycle repairing." The average owner of an automobile must needs provide himself with a blue book of repairers or else run chances while his machine is in the hands of repairers who will experiment on them as the hospital surgeon does on his patient.

### Business Service in Boston

From Boston comes a report to the effect that shortly two or three new automobile projects will be in operation. The makers of machines are coming to realize that the real substantial success of automobiles depends to a considerable extent upon their adaptability to business uses, rather than upon their success as pleasure vehicles. Since Thursday of last week experiments have been going on in the streets with a steam delivery wagon. The wagon is about the size of the electric delivery wagons that were put out by the New England Electric Vehicle Transportation Co. It has an engine made by Clark, of Boston, and wooden spoked wheels with hard rubber tires, and is the same pattern that has been in use by the Pittsburg Press for some time. If the experiments are successful, it is expected that one parcel delivery company will make use of a number in place of wagons drawn by horses. The automobiles, it is expected, will be used both for collecting packages and also for delivering them from the company's stations in the suburbs.

Another automobile project that is to be launched shortly is an advertising line. One company has about completed four machines. They are electrics. No attempt will be made at speed. The bodies are painted a light green, with a driver's seat in front. Surmounting the body is a square turret with glass windows in the sides. By an ingenious arrangement of curtains the advertisements are displayed in two parts. One curtain bearing a part of the advertisement remains down for a few seconds and then is replaced by another bearing another part of the advertisement. It is not intended to sell all the advertising space on one wagon to one firm, but to have each carry four displays.

An Auto Express Co. intends to open a station at Chelsea in a couple of weeks and to deliver goods in the section including East Boston, Charlestown, Winthrop and Revere. Already six wagons are being operated in the Dorchester section. These wagons are of a large van type, the body being entirely independent of the truck, which is of steel. The wheels have solid tires and the batteries are slung under the body. Each wagon has a capacity of 3,000 pounds, and is capable of running 40 miles on a charge. The company does not do a general express business, but contracts with large firms for deliveries. The wagons pick up goods from firms in the city and transport them to the suburban station, where they are sorted and delivered to purchasers.

### Characteristic of St. Louis

Speed is abhorrent to the average citizen of St. Louis. There are exceptions, of course, and the speedy citizens are at war with the slothful over an ordinance which the city council will pass upon in a few days. The anti-rapid transit bill specifies that the speed of automobiles shall not exceed 6 miles per hour in parks and public places, nor 8 miles per hour on streets and thoroughfares. As originally introduced the taxation bill prescribed a $20-a-year license, but the ways and means committee has amended it to $10. Captain Boyce offered another amendment declaring an emergency and making the bill effective immediately upon its passage.

Automobile owners consider the proposed regulations as to speed and license unfair and inequitable, and they propose to fight the bills in the house of delegates if the council should pass them, which seems probable. The owners argue that no other American cities have imposed such restrictions.

### The Meybach Patent Beaten

Another of those swindles of which the British public has long been the victim, perpetrated by a man whose name is reviled throughout the cycle trade, with which he was formerly connected, as well as the automobile industry, has just been unearthed and overthrown. That grand master of the art of bluffing, Harry J. Lawson—the same man, by the way, who came to America 18 months

ago to revolutionize the industry here—has been the prime mover of the British Motor Traction Co., a concern which has about as much genuine connection with the automobile trade as a board of trade man has with handling crops. Claiming to own a patent on a carbureter which covered practically every form in use, and granted to one Meybach, Lawson has demanded of makers a royalty of 10 per cent on the total value of the carriage without the body, a sum varying from $125 to $400 per vehicle.

The Daimler company paid Lawson $200,000 for certain patents, including the Meybach patent. The Hon. Scott Montague, M. P., in a paper read before the automobile club, gave it as his opinion that if the patents, other than the Meybach patent, bought by the Daimler company were put up at auction there would not be bid $500 for the lot. It would appear, therefore, that the Daimler company paid the Lawsonian group $199,500 cash for the Meybach carbureter patent.

The British Motor Traction Co. during the exhibition in Agricultural Hall last spring issued scores of writs to importers of foreign carriages, on the ground that these carriages were fitted with an infringement of the Meybach carbureter patent. T. W. Staplee, acting on behalf of the Automobile Protection Association, asked the courts that the decision in one case might be held good in the cases of all companies served with the writs. Members of the trade subscribed money with a view to fighting against this attempted monopoly.

The case selected as a test case was that of the British Motor Co. against Friswell. This was tried last week before Justice Farwell. He has just given a decision by which the Meybach patent is entirely overthrown, the British Motor Traction Co. being ordered to pay the costs of the action.

### Buffalo Ripe for Agencies

It is claimed that Buffalo has not taken to the automobile as rapidly as some of the manufacturers and agents wish, but the appearance of the streets and the roads leading to Lockport and Niagara Falls would suggest that Buffalo has the automobile habit quite badly. The streets give evidence that there has been a lot of money invested in Buffalo. The splendid streets and the money left through the Pan-American should make Buffalo a desirable place for an automobile agency next year. The steam automobile livery started for the Pan-American seems to be a success judging from the crowded four seaters seen on the streets, nearly all of them carrying six people. It is said, however, that the man who owns the livery has paid a good deal through the ignorance or carelessness of his drivers who have contracted a boiler burning habit.

### Hill Climbing in Europe

A hill climbing contest occurred at Spa, Belgium, July 2. There were prizes for five classes of vehicles. The distance was approximately 3¾ miles. The winners were as follows: Motor bicycles, De Ridder, 8:55 1-5; tricycles, Osmont, 8-horsepower De Dion, 5:21 2-5, as against 7:21 4-5, the previous record; voiturettes, Orban-Viot, 4½-horsepower Renault, 12:57 3-5; light vehicles, Roland, 9-horsepower Gobron, 7:46 1-5; heavy vehicles, Joseph De Crawhez, 28-horsepower Panhard, 7:37 4-5. Unfortunately the grade is not stated in the reports.

An extraordinary feat was accomplished at Lyons, France, about the 18th of last month. Jacquier, on a Rochet voiturette, driven by a 2¼-horsepower De Dion motor, climbed the great hill of Lyons, which has a grade of 25 to 29 per cent, covering 450 meters at a speed of 10 kilometers to the hour.

### Exhibition in Hungary

The American consul at Budapest, Hungary, writes that the first automobile exposition in Hungary was opened on June 17. About 70 machines were on exhibition. The only American make was the Locomobile. It has only one agent in Vienna for the whole monarchy. The German firm of Benz & Co. put on a motor machine, as did the French firms of Peugeot and Darracq, all of which have agents in Budapest. Austria was represented by Daimler and the Brain Automobile Co. Hungary's home manufacture consisted of an electric tricycle made by Geza Szam. The Velodrom

company, of Budapest, agents for the Peugeot, made the best showing. American manufacturers should at once represent themselves here.

### New Companies and Makers

Organization of the Feister Engineering Co. has been effected under the laws of Delaware. H. P. Feister of Philadelphia holds the chief interest. The company is to make automobiles.

The Rockford Automobile Co., with capital of $100,000, with headquarters at Rockford, is the latest. The company is the outcome of the efforts of R. K. Swift and M. H. Detrick, who recently made one or more experimental machines near Chicago and have since interested people at Rockford.

The Auto Street Sweeper Co. has been organized with offices at Montgomery and Washington streets, Jersey City, N. J. Object, to manufacture street sweeping machines; capital, $100,000. Incorporators, George Pope, Roswell S. Nichols, John M. Scoble, Paul Walton, Lawrence C. Cherrill.

Zenas Thompson & Bro., of Portland, Me., who are the local representatives of the Mobile, have commenced to make vehicles for themselves. The vehicles are propelled by steam but are longer and larger generally than the carriages the firm has been handling. The firm employs a superintendent, W. C. Buckman, who was for some years with the Stanleys. It makes all of the mechanism, except the boilers, in its own shop. It is expected that a number of vehicles will be completed during the winter for spring delivery.

The organization of the Aerio-Cycle Co., of Buffalo, is announced. Its capital is $7,000 and its directors are E. S. Bundy, F. W. Thompson and C. B. Sears, all of Buffalo.

F. W. Gridley, who practically owns the Olive Wheel Co. confirms the report that the company will make automobiles. He says they will be of the steam variety and that the factory will employ from 300 to 400 men.

The Plainfield (N. J.) Automobile Co., having failed to get electric vehicles for its proposed public line, has been reorganized under the name of the Twin City Transportation Co., in which, it is said, the New York Motor Vehicle Co. is interested. J. Wesley Johnson is president.

Fred Hesse and Harry Duckworth, who are building an automobile at Santa Rosa, Cal., expect to be able to interest capital and build and operate a factory there.

As a result of the manufacture of a steam vehicle at the factory of the Badger Brass Co., at Kenosha, Wis., for the use of R. H. Welles, treasurer and manager of the company, it is not improbable that a number of others will be made. Two orders have been received from friends of Mr. Welles.

### Another Indian Takes a Ride

Following the experience of Edwin F. Brown, of Chicago, as related in last week's issue, who entertained an Indian chief by means of an automobile ride in 1899, comes a story from Missoula, Mont., to the effect that State Senator Worden has just had a similar experience. Charlo, chief of the Flathead Indians, saw an automobile for the first time and, with Louie, one of his chiefs, was invited to take a ride.

Charlo needed no coaxing, but Louie was afraid. After some persuasion, however, they both entered the vehicle with Senator Worden and took a spin around the city.

During the ride Charlo turned to Senator Worden and, with a grim smile lighting up his usually stern and immobile features, remarked: "Well! People think we drunk, let our horses run away, eh?" His companion, Louie, did not seem to relish the situation so well, as he was badly frightened from the time he entered the vehicle till he alighted.

### The Ottomobile of Omaha

Omaha, Neb., August 5.—"The automobile," said Otto Baysdorfer, of Baysdorfer, Dumbleton & Co., builders of gasoline engines and light motor vehicles, motor cycles and parts, at 711 North Sixteenth street, "is sure to be a winner, and our capacity is already being taxed to its utmost supplying the demand. As for our manufacture, I know we are putting up an excellent machine,

and, as I say, we have our hands full filling orders. The name of our product will be the Ottomobile, which will sell for from $500 to $600. It is propelled by a gasoline engine, and weighs about 300 pounds. It will be able to maintain a speed of from 20 to 22 miles per hour, and is capable of climbing any hill in Omaha.

"We are also building a motorcycle which will be known as the Ottocycle, and which has one horsepower. We are going to build a gasoline motor which will be adjustable to any bicycle. It will add from 18 to 20 pounds to the bicycle. We are prepared to take orders for both automobiles and motorcycles, or our own engine equipment. We are going to make a specialty of building engines."

### Not a Bad Joke

D. W. Blake of Pratt, who owns the only automobile west of Hutchinson, often stops in the middle of the highway and laughs and laughs. For hay is selling at a cent a pound. Cuba (Ks.) Daylight.

O. L. Simpson, whose summer home is at Shorstville, N. Y., and who is a relative of the Simpsons, of Simpson, Crawford & Simpson, the New York dry goods people, recently toured from Boston in his steam carriage, taking the road by way of Springfield and Albany. Mr. Simpson met with a succession of thunder storms and bad roads and had the misfortune to burn his boiler at Fonda, N. Y., but his Mobile served him well in all other respects. The machine was taken by train to Rochester where the Rochester Cycle Co. put it in good shape and Simpson proceeded to Shortsville, from which place he started for Nova Scotia.

A Baltimore automobile agent has an effective argument when a prospective customer demurs at the trouble necessary to keep a machine in working order. To such a man he points out the fact that if he had a horse, the latter has to be clipped, fed and kept in good shape generally, and if he does not do it himself somebody has to do it for him. The work is not as attractive as attending to one's automobile, he rightly says, and requires considerable more time and attention. To the man who has owned a horse, this makes a strong argument.

The British Automobile Club held a number of races at Crystal Palace track last month. J. Leonard won a mile race for motor bicycles on a Werner, in 1:53 1-5, and in an hour race C. Jarrott rode 36 miles 798 yards on a De Dion tricycle. Apparently motor tricyclists are not inclined to indulge in track events, for Jarrott was the only entry in three events.

An automobile race with four starters is the latest from Russia. It took place on July 14 over the course between Moscow and St. Petersburg, 693 kilometers, which was covered by the winner, Masi, in 37 hours 54 minutes, not very bad considering the roads. Masi was once a resident of Peoria, Ill., and a well-known racing cyclist.

W. K. Vanderbilt, Jr., is circulating for signature a petition to the council of Newport, R. I., to allow the ocean boulevard to be used for an automobile race on the afternoon of August 30. It is said that he will offer prizes, will himself be a competitor and that the petition has been signed by most of the business men and cottagers at present at Newport.

M. Santos Dumont, the wealthy Brazilian who recently made a trip around the Eiffel Tower, Paris, in his new flying machine, used a 16 horsepower Buchet four cylinder hydrocarbon motor the normal speed of which is 2,000 R. P. M., and which weighs 50 kilos.

Bicycle riders and automobilists going to Buffalo who are not in possession of a map of the roads of Erie and Niagara counties may procure one of the Matthews-Northrup Co., of Buffalo, which prints an up-to-date vest pocket map which sells at 20 cents.

Manager Hill, of the Toronto Industrial Exhibition, is endeavoring to interest makers of automobiles in a race from Buffalo to Toronto during the exhibition.

The first attempt at mail collection in an automobile is said to have been made by Dr. Martin, now president of the Buffalo Automobile Club, on July 2, 1899.

# SUCCESSFUL ELECTRIC IGNITION

BY A MAN IN THE TRADE.

The writer has been deeply interested in the articles on this subject which have appeared in Motor Age. To obtain a jump spark at the right time, at the right place, of the right heat and keep it up continuously is one of the problems of gasoline motor building that has as yet not received the deep study it merits. It is of vital importance. The success attained by inventors in foreign countries should act as a stimulant to American builders. I do not desire to discredit the progress made nor to insinuate that jump spark ignition has not been given deep study, but rather desire to call attention to the degree of proficiency still lacking. That this method is steadily gaining is proven by the fact that many stationary engine builders are applying it—a few equipments at a time, but still applying it—all of which tends to show that the make-and-break method so long used is gradually giving place to the later and higher tension spark. The jump spark, so far as heat units are concerned, is far more efficient than the older method, but its application is seldom carried out scientifically.

The potential of the secondary current should be as high as possible, this feature making the heat of the spark effective when other conditions are as well provided for. The secondary winding on the coil being responsible for this current, the primary must, of necessity, be rightly proportioned in order to give the greatest amount of heat in the spark with the lowest possible consumption of battery power.

When a coil having these features is provided the next thing to be considered is the source of electrical supply. In case batteries are used those having a voltage ranging from six to nine and an ampere current of 10 to 12 will be found well adapted to the purpose and, given care in insulating, should last a long time, particularly the dry cells, made especially for this class of work, which do not deteriorate with rough usage, lying on their sides or even being turned up-side down. There are some such batteries but their cost is slightly in advance of the ordinary dry cell to be had in electrical supply depots. Some storage batteries might be used in connection with the same coil and form of ignition, but their cost would be greater and their life shorter than the well made dry cell. If facilities are at hand for frequent recharging they can be used where the operator's choice leads him to that form.

After the battery comes that small but necessary and troublesome article the plug. When it goes wrong, the most costly outfits are good for naught for the time being. The plug should be chosen with great care, first, in respect to its perfect insulation; second, with regard to the danger of breakage by accident and under heat and, third, its liability to corrode at the points, a condition likely to occur where steel or metal other than platinum is used at the points. The heat is great and even where the mixture used is superfine and leaves little or no deposit, scale will form which will insulate the points and force the current to jump elsewhere, even though the distance be greater. Platinum, however, will not permit of this condition, nor will it burn so as to be useless, as will steel, but it may at times become carbon coated. It is therefore wise to so place the plug that the mixture and fresh intake charge may pass across it, to assist in keeping it clean. I have heard this method scoffed at but it has been demonstrated to be feasible and has been tried in large, stationary engines for weeks at a time with satisfactory results. When taken out at the end of seven weeks the plugs were found to be perfectly clean, with no carbon on the face or points.

In the ordinary plug short circuiting is usually the first trouble and causes more inconvenience than any other feature. This may be caused by carboniza-

tion of the insulator, through absorption of moisture from the air and gas, or by the insulation being too light or otherwise inefficient. Some insulators will break under heat, especially where the construction of the plug is poor, while other forms, while standing the heat far better than porcelain and talc, will short circuit unless most carefully made. The best way, if you can not satisfy yourself that there is a good one to be had on the open market, is to build your own plug, taking care not to put into it anything that will allow the troubles to arise. Use plenty of space to get proper insulating, then use as an insulator a highly glazed porcelain that has already withstood extreme heat and which is as nearly as possible without blemish on its surface. Then so insert it in the plug that it bears no stress, especially when under heat. If mica can be used more readily use as large a plug as possible and as small an insulating tube as is consistent with good insulation and see that there is sufficient space around the insulator that it may not touch the steel. Should the mica hold carbon to the extent of short circuiting, the insulator may be cleaned by filing or scraping the parts, to rid them of carbon.

These three important features having been cared for look to the wires. Have them of the heaviest possible insulation, for battery power is often lost by lightly covered wires coming in contact with or even being placed near iron or steel. This, in many instances, is the reason batteries run down. Owners become dissatisfied when, as a matter of fact, their own negligence is accountable.

In constructing the primary circuit breaker, make it simple; make the parts heavy—sufficiently strong to work long, hard and continuously. This little part, though insignificant in a way, plays an important part and must be looked after with intelligence. The contact points should, in all cases, be of platinum for between them at the breaking of the primary circuit, is generated so high a temperature that it will, in a short time, put any other metal except platinum out of business. The insulation of the parts of the circuit breaker must be heavy and mechanism provided for the particular form of coil to be used, for all coils are not alike in terminal construction. I noticed a simple form of construction in last week's issue which will give an accurate idea of the one used on De Dion and other high speed engines and which may be adopted in principle, but changed in style to meet individual requirements. It is one of the most simple and positive working known, but can be reversed and instead of a notch being cut out of the cam into which the trembler drops each revolution, the cam may be made circular and a small ridge on one side may provide for the commutator to rise on and drop off of, the edge being made sharp in order to break the circuit as sharply as possible. The adjusting screw carrying one of the primary wires would then have to be placed above, instead of below the commutator that it may come in contact with the latter when the ridge on the cam forces it upward. There is little to choose between the two unless the patents held by the De Dion company, and which were recently sustained in England, covering its form of trembler or vibratory spark, be held against its manufacture.

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The chief of police at LaCrosse, Wis., has asked for an automobile patrol wagon, having satisfied himself of its economy.

# FROM CORRESPONDENTS

Moorestown, N. J., July 29.—To the Editor.—As a repairer I will offer one or two suggestions. I started for New York in a gasoline vehicle and made good time until we got caught in a storm. We did not oil our engine as often as we should. It is supposed to be oiled about every 25 miles, but on the heavy roads it is really necessary to oil about every 12 miles. In other words 12 miles on bad roads is about equal to 25 on good ones so far as lubrication is concerned. It will pay to oil by time elapsed rather than by distance.

I find a break in a secondary current will let the engine run at times and at others it will not run at all. A straw in the gasoline pipe running to the mixing valve will have the same effect.—Yours. etc., A. L. Hilaman.

(In connection with the break in the secondary winding of the spark coil mentioned, we recommend sending the coil back to the factory to be put in condition before its failure becomes cronic. If the factory receives the coil without its having been tampered with by the user, the defect will, most likely, be fixed to the satisfaction of the owner either free of cost or at a nominal figure; but if it has been taken apart it is more thar. likely the repairs will cost considerable as there is then no way for the makers to determine whether the coil was really defective or was injured by carelessness. A short circuited coil will seldom furnish spark enough to explode a mixture.—Ed.)

### Saves Trouble in Lighting

Manchester, Ia., Aug. 3.—To the Editor.—I am using a steam machine and sometimes have trouble from the fire blowing out. When the wind blow a great deal of trouble to relight it. I have tried, and offer to your readers, the following plan:

Take a bicycle spoke and bend a ring at one end for a handle. Around the other end wrap a little asbestos paper and fasten it by binding with fine wire. When the burner blows out hold the asbestos in front of the burner, open the needle valve and saturate the asbestos with gasoline. Light it, insert it in the burner and turn on the gasoline, thus saving a lot of trouble and the waste of your matches. I trust this hint may be of use to some other user of a steam machine.—Yours, etc., J. R. Toogood.

### Some Distressing Experiences

Columbia, S. C., Aug. 1.—To the Editor.—In July, 1900, I gave western makers an order for a three seated gasoline automobile which they agreed to deliver or have ready at their factory in 70 days. In response to a telegram I went to their factory on October 8, and found machine in an unfinished condition and could not test it at all. It was shipped October 18 and received November 3. Taking it out and starting it was the beginning of my troubles. It would hardly pull a 4 per cent grade although guaranteed to do 12 per cent. From November 3 until sometime in March I tried, by correspondence and trial, to get some time out of it without avail. Clutches would stick and break, countershaft bend, brasses and studs break, knocking bottom out of aluminum base, differential spread because the makers had failed to provide means of oiling the shoulder and altogether, up to date, I have never gotten one satisfactory day's time out of the machine. As a last resort the engine was returned for overhauling and as soon as returned and put in the differential gave way on the first

trip. That fixed and another start made the counter-shaft bent by nut working loose on sprocket and striking fly wheel.

My principal trouble, outside of breakages, has been with exhaust valve springs, contact points and trouble in starting the engine. I believe if the company will only give a more finished job, better material and construction they will have as good a machine as can be made, but I would advise no one to buy under the present contract which is only to replace broken parts owing to defects of material and workmanship.

What we buyers want is a guarantee that our money will be refunded, provided a machine will not operate successfully under normal conditions for at least three hours at a time without breakage of some kind. Under the above conditions I am in the market for another machine.—Yours, etc., Charles D. Miller.

## English House Wants Agencies

Birmingham, England, July 16.—To the Editor.—We should be pleased if you have any enquiries for agents, from your manufacturers, of anything connected with the cycle and motor trades, if you would put us into communication with them, as we are open to take up any American agency, or are prepared, where there are any special large lines, to buy for cash. We can give undoubted references. Our business premises are close to the center of this city which, as you are aware, is the center of the cycle and motor trade. We have a large connection of over 15 years standing.—Yours, etc., The Arrow Cycle Co.

## Who Has This Antiquity?

New York, July 25.—To the Editor.—We are desirous of getting a 42 inch old style Columbia bicycle. This we want for a special purpose and would be willing to pay a liberal price for either a new or second hand one. We write to you knowing that if it can be had you can put us in the way of getting one.—Yours, etc., S. B. Davega.

## Hint to Repairmen

Paris, Texas, July 28.—To the Editor.—For fear there may be some one else as slow to catch on as I was, and for the good of such an individual should there be one, I am going to tell the following experience. A few days ago I wanted to cut a groove in a casting. The casting was 2 inches wide, and it was necessary for the groove to reach across its width, and to be 1-8 inch wide and 1-2 inch deep.

Those who have cut similar grooves with a file know what the proposition means. A file large enough to do business with is too wide and such a groove, cut with a file, is sure to be a little tapering. A hack saw blade is too thin, but two hack saw blades, put in the frame at the same time I found to be just right. I was able to cut a perfectly straight groove, the saw did not wedge and it was done quickly. Since that time our shop has used as many grooves as possible. If two saw blades are not thick enough to cut the desired groove, three can be used, at least. I do not care to put any restriction on the number of saw blades a man shall use at one time, but prefer to leave that optional, and presume makers of saw blades will be as liberal.—Yours, etc. Earl K. Baker.

## Information Wanted

Houston, Texas, July 28.—To the Editor.—Will you please tell me where I can get books on building automobile houses? We have a number of parties who intend adding automobile houses to their swell homes. I want information so as to build suitable for the easy oiling and taking care of steam autos. If one is going to build a shed or house for a steam carriage it should have every improvement added so as to get under the machine easy to look it over and run same if necessary, therefore I am very anxious to get the proper information from some one who knows what is needed.—Yours, etc., The Houston Auto. Co.

## To Preserve Your Tires

Philadelphia, Aug. 3.—To the Editor.—Here is a wrinkle to save wear and tear on tires. A friend of mine purchased four old G. & J. outer casings which had been used on a bicycle, and fitted them over the tires on his vehicle. They were attached while the tires were deflated, and when pumped up held as tightly as if they were cemented. These casings do

not interfere materially with resiliency of his tires, but protect them from cuts. He stated that he had also used Dunlop casings for the same purpose, but with those it was necessary to cut out the wires. Users of single tube tires on English roads have used rubber bands with good results. These, however, are cemented to the tires.—Yours, etc., M. Hits.

(Another correspondent writes that he has tried the same plan with success. In this case heavy rubber bands were used. They cost about $6 to apply and have more than paid for themselves in added freedom from punctures in a few weeks' use.—Ed.)

### Experiences With a Reading

New York, July 30.—To the Editor.—I am riding a Reading steam carriage. Of course my first experiences caused me some difficulties. The principal one was in controlling the fire. After I overcame this point and understood the appearance of a perfect fire I no longer had any difficulty in keeping up steam. The next point that troubled me was lubrication. Though the Reading carriage has an exceedingly large lubricator, I found that I was liable to use all the oil in two or three miles, but after experimenting in adjusting the valve I found that by keeping it but slightly open, I achieved very desirable results. If I opened it more than one-sixteenth of a turn the oil was liable to run all out of the lubricator, but by keeping it very close it would last from 25 to 30 miles.

My next trouble lay in breaking the chains. I found that the chain must be very much more tight than used upon bicycles. If it is carried loosely, the reverse is liable to snap it. This is another point that I have overcome since by keeping the chain as tight as possible.—Yours, etc., Harry Brown.

### Alleged Imitations

Chicago, Aug. 5.—To the Editor.—It has just come to our knowledge that some members of the trade are selling induction coils of questionable quality to uninitiated buyers, passing them off as Dow coils. We desire to call the attention of the trade and individuals to the fact that all Dow coils, batteries, etc., have the name "Dow Portable Electrical Assistant Co., Boston," stamped or marked thereon, and ask them to be sure, when they ask for our goods, to see that the name is plainly to be seen thereon, before purchasing.—Yours, etc., Dow Portable Electric Co., The P. J. Dasey Co., western representatives.

### Tried and True Indeed

Marion, O., Aug. 2.—To the Editor.—I have an automobile of my own construction which is propelled by a gasoline motor. It has been tested to 20 miles per hour and is working tolerably satisfactorily. It is propelled by friction clutches which are automatic. When the pressure is released from the foot lever the clutches release themselves and the motor will run without propelling the carriage so that, in case the driver should by any means be thrown from the carriage, the motor would cease to propel.

I recently had an accident which happened in the following manner: There were three of us on a temporary frame which takes the place of the bed of the buggy and in starting down a very steep hill we gave it a quick, fair start, loosened the clutches and allowed it to be propelled by its own momentum. Near the foot of the hill was a large stone in the pike and on account of our error in judgment as to the speed at which we were going, one of the front wheels struck a glancing blow, throwing the front of the buggy possibly 18 inches to the left so suddenly that I was thrown from the seat, as was my son who was sitting beside me. As I left the buggy I held to the steering lever which threw the wheels to the left and the buggy ran directly into the ditch at the side of the pike. I landed upon my head and back and was injured somewhat; my son was thrown some 10 feet back of me and was dazed for a couple of hours.

The other party who was on the carriage ran into the ditch with it and held his seat. The carriage, upon striking the bottom of the ditch, turned lengthwise and ran down the ditch a short distance and stopped. The motor, however, continued to run. On examination we did not find anything broken or disar-

ranged in the automobile and as soon as we got the dirt off ourselves we started the machine and rode home on it. If a snap shot could have caught us at the right time it would have made a good picture for Puck.—Yours, etc., Busby P. Sweney.

### Prices of Steam Vehicles

Syracuse, Aug. 2.—To the Editor.—The recent advance in prices made by our competitors will not have any effect upon the price of our carriage. We did not establish our present prices on the basis of any estimate, but figured from carefully prepared sheets of actual cost. We believe, however, that other people have had similar experiences to our own, and have found that the first estimate of the cost of building an automobile was much too low, figuring independently of any expense for experimenting or preliminary work, and we shall be pleased to hear of the experience of other people on that subject.—Yours, etc., Century Motor Vehicle Co.

### A Wayside Repair

Baltimore Aug. 3.—To the Editor.—Although I have "moted" at least 2,000 miles I have never had a serious accident but in crossing the Blue Ridge mountains, between Luray and Warrenton, Va., a nipple broke leaving only a half thread. I managed to find a tap and die, of different sizes, at a blacksmith's shop, cut a new thread on the old nipple and then tapped out an elbow which served very well as a makeshift. I hope to send you an account of a trip from Baltimore to Frederick, Md., Hagerstown, down the Shenandoah valley to Luray and home by way of Washington.—Yours, etc., Harold A. Clark.

### Through English Spectacles

Redditch, England, July 25.—To the Editor.—Perhaps you would be interested in the observations of one of your subscribers in England who has followed the development of the automobile for some time and has reason to feel favorably toward American goods. My observations lead to the belief that the cost of operating a light steam vehicle here is about two pence, or four cents, a mile, for petrol, or gasoline, alone. This is, of course, higher than it would be in America, but it is so abnormal as to be far too costly for the ordinary individual. Moreover, the steam car, weight for weight, has not the same speed as the petrol car, and the amount of trouble to a man who is not an engineer is greater. It is, of course, unfair to figure the cost of operating on fuel alone, as tires, depreciation and capital must all be taken into consideration, but the cost of running 100 miles as compared with, say, a De Dion or a Darracq, would be so considerable in immediate expenses alone as to really make it prohibitive for a man with an income of less than £1,000 a year.

The English engineering houses, notably Thornycrofts, are turning out some splendid vehicles for hauling loads of three tons and upward. These, of course, are steam driven. I think there might be a field for a steam driven car for delivery purposes to carry loads of from half a ton to three times that weight. I think a firm specializing on this class of vehicles would possibly make a bigger permanent business than anyone can in working on light carriages. Refinements would not have to be considered to such an extent and possibly a cheaper fuel could be used and it would not be necessary to place the mechanism in such a small space.—Yours, etc., Frank E. Baker.

### Only a Broken Glass

La Crosse, Wis., July 29.—To the Editor:—The local paper reports that "I. G. Loomis' new automobile stopped upon Gillett street last evening, due to a defect in the machinery." The vehicle is a Locomobile. The trouble was no fault of mine or the machine. The water glass broke so I left it until morning.—Yours, etc., I. G. Loomis.

J. W. E., Milwaukee.—Probably due to an accumulation of dirt in the supply pipe or the generator. If it operated successfully once, it must do so, under the same circumstances, again.

T. L. L., New York.—A gentleman who has had the same trouble threw out the mechanism and substituted a De Dion carbureter, which, he reports, is working perfectly.

# CONSTRUCTION OF A BICYCLE MOTOR

## CONCLUSION.

Figure 36 shows a detail of the shut-off valve body. A bushing is used in the lower end to hold in place the 3-16 inch pipe, which leads from gasoline tank to mixing valve. This bushing is similar to, the one shown in Fig. 29, and a lead gasket of the same pattern as shown in this figure is also required. The 7-16 18 thread in the lower end should be cut in the lathe. A 1-8 inch hole is drilled just above the seat as shown, for the gasoline outlet to the 3-16 inch connection pipe. The upper part of the shut-off valve body has a 1-4 20 tapped hole in it, and the valve seat should be made before the hole is tapped. This can easily be done by using a drill the same size as the tapping drill, and grinding the point to a 60 degree angle, instead of 120 degrees as is usual.

Figure 37 is the valve spindle and should be made of steel with a small brass hand wheel as shown, and the thread turned away at the pointed end of the spindle to the length given in the drawing.

Figure 38 is the stuffing box and cap for same. These are of brass. The top

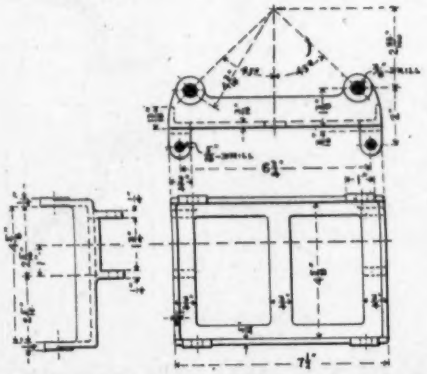

FIG. 40. MOTOR SUPPORTING BRACKET. One, cast steel.

of the stuffing box body and the inner portion of the cap should be countersunk as shown, so as to firmly press the packing up to the valve stem, and insure a tight joint. Asbestos or lubricator wicking should be used to pack the stuffing box. A small hole about 1-32 inch should be put in the cap of the filling plug of the gasoline tank to allow vent for the air; otherwise the gasoline will not flow readily. The removable plug and body for same are shown in Fig. 39, they are of brass, the body is of course a casting, and the plug can be made from a small piece of rod brass. A No. 6-32 tap hole is shown in the square end of the plug. This is used to put in a button head screw, to hold one end of a piece of jack chain; the other end should be attached to a small brass clip or connector and soldered to the bottom of the gasoline tank. About 3 inches of the chain is all that will be necessary for this purpose, and the link of the chain, into which the button head screw goes, should be a free fit over the same, so as to allow the plug to turn around when screwing in or out of place.

Figure 40 shows three views of the motor supporting bracket. This should be made of cast steel and a nice pattern is required for the same. Only file finish should be allowed on the pattern, as it will not be necessary to do any machine work on the casting, except to drill the holes as shown.

Figure 41 shows the frame lugs, which go upon the front lower diagonal member of the bicycle frame. These should be pinned in place upon the tubing before the frame is assembled if it is desired to use a bicycle already assembled. The lugs will have to be made in two parts, and clamped to the tube while brazing in place. The motor supporting bracket is held in position upon these lugs by from 5-16 hexagon head cap screws, which go into the tapped holes shown in the lugs in Fig. 41.

The studs which belong to the crank chamber, and two of which hold the motor in place in its supporting bracket, are shown in Fig. 42. The two longer ones are used to hold the motor in place

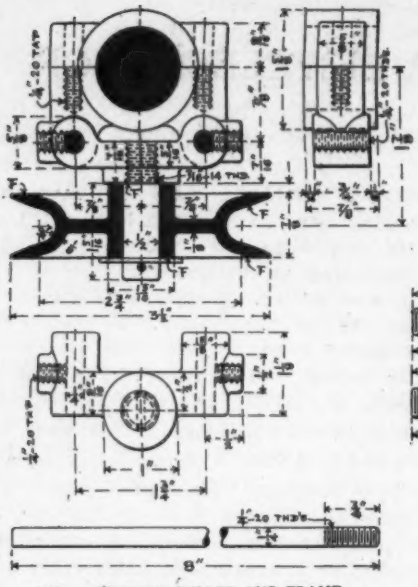

FIG. 44 TENSION PULLEY AND FRAME
One, complete.

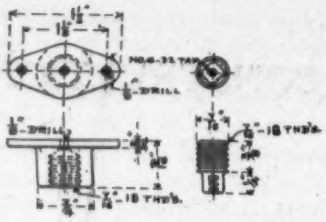

FIG. 39 REMOVABLE PLUG AND BODY
One each, brass.

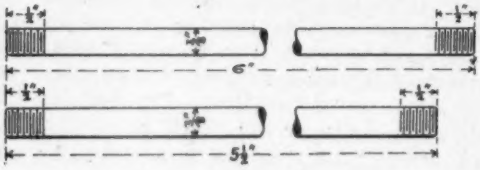

FIG. 42 CRANK CHAMBER STUDS
Two each, steel.

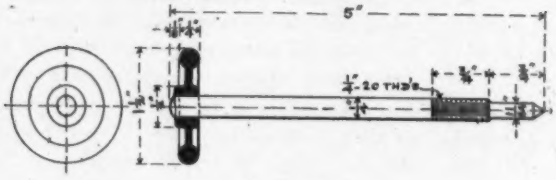

FIG 37 VALVE SPINDLE
One, complete.

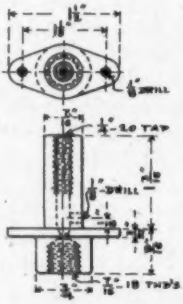

FIG 36 SHUT-OFF VALVE BODY.
One, brass.

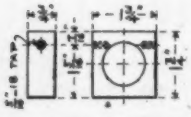

FIG 41. FRAME LUGS
Two, steel.

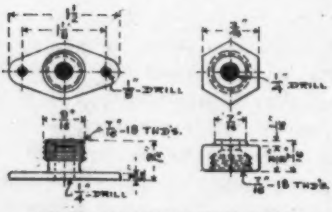

FIG 38 STUFFING BOX AND CAP
One each, brass.

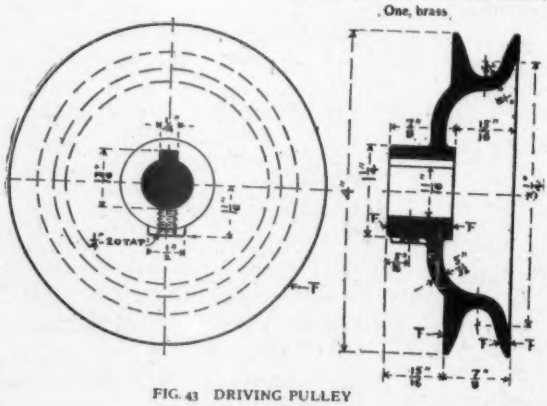

FIG. 43 DRIVING PULLEY
One, bronze.

by passing through the 3-8 holes in the supporting bracket as well as through the lugs on the crank chamber body.

Figure 43 shows the motor driving pully or sheave. This should be made of bronze. A pattern should be made with a core print on for the groove, to save the labor of turning the same out of the solid metal: The pulley is intended for a 3-8 inch round belt, and should be fitted with a set screw opposite to the keyway in the hub to hold it securely in place while running. It is a good plan to fit the pulley on the end of its shaft, after drilling the tap hole for the set screw, and run the point of the

tap drill about 1-16 inch into the shaft, before tapping out the hole, so as to let the point of the set screw into the shaft.

The tension pulley of sheave, clamping brackets, guide rods and tension pulley bracket are clearly shown and detailed in Fig. 44. Two clamping brackets are required, which should be of bronze. The lower one has two 1-4 20 tapped holes in its projecting lugs. The two 1-4 inch guide rods screw into these tapped holes, and are supported in 1-4 inch clearance holes in the upper clamping bracket. The tension pulley stud is of steel and should be made a nice working fit in the tension pulley. The tension pulley is held in place on its stud by a washer and split pin or cotter as shown. The tension pulley bracket has two bosses upon its lugs, for 1-4 20 set screws, so as to lock the tension frame securely in place after adjusting the belt. After the clamping brackets are bored out to fit the tubing the hole in one lug of each only should be drilled; then the two brackets clamped on a mandril and a pin of the proper size put into the holes already drilled, and the remaining holes drilled so as to insure proper alignment of the same. The same method should be employed with the tension pulley bracket by drilling one hole first, and, by means of a pin as before mentioned using one of the clamping brackets as a jig to drill the other hole. Of course only tap holes are to be drilled in one of the clamping brackets, but both brackets can be drilled out with tapping drill, and the clearance drill run through the holes in the other brackets afterwards.

Figure 45 shows a general outline of the sheave or pulley for the rear wheel of the bicycle. No dimensions are given, as it is not the purpose or scope of these articles to illustrate and describe a complete motor bicycle, but only a bicycle motor. It is, however, thought to come within the province of these articles to give a general outline of the driving mechanism of the bicycle so as to give

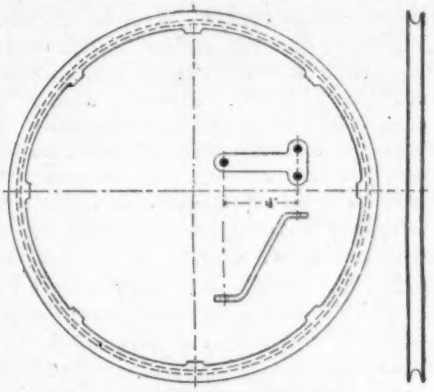

FIG. 45. REAR WHEEL SHEAVE.
One, aluminum.

the builder an idea of its construction. The sheave or pulley is attached to the rim of the rear wheel by means of lugs or clips as shown in Fig. 45. If made of brass or bronze, instead of steel as shown, they would require to be somewhat heavier. The distance from the center line of the pulleys to the center line of the frame of the bicycle is 1 7-8 inches, and this is clearly shown in Figs. 44 and 45.

The sheave or pulley for the rear wheel can be made of aluminum, as it has less wear upon it than the driving pulley, and reduces the weight materially.

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**The series of articles on The Construction of a Bicycle Motor will be published in book form in the near future.**

# THE EXHIBITS AT THE PAN-AMERICAN

The judges of the automobile exhibit, headed by Mr. Bostwick of the Automobile Club of America, attended to their duties at the Pan-American last week, and their awards will be made known September 1. Mr. Bostwick should be well qualified to judge automobiles, as he is the owner of eight of varied makes, and has undoubtedly experimented with and tried all the leaders. Mr. Bostwick surprised some of the exhibitors by inviting them to appear on the Stadium track for actual tests. Some of the exhibitors balked at the invitation, but the majority accepted the suggestion. Mr. Bostwick, in one instance, showed himself somewhat unfamiliar with steam carriages, as he threw the Grout New Home steam carriage on dead center, but a little instruction put him right and the carriage behaved splendidly.

The automobile manufacturers make a splendid showing for an infant industry. There is, however, more or less listlessness about the exhibits. There are no souvenirs and no crowd to keep the attendants busy, but it is to the credit of the auto manufacturers that they have done so well in the early stage of an industry.

Not much can be said in regard to the bicycle exhibits, and the judges will not have much trouble in the awards, as the three or four exhibitors all deserve gold medals. Those who exhibited will surely form connections through their enterprise that will be valuable later on.

It is the purpose of the writer to run over briefly the exhibits inspected during a stay of nearly a month at the show. Incidentally, it may be remarked of the automobile tests, that Charles Grout, of Grout Bros., who are destined to figure largely in the automobile business, created some surprise and amusement when some one asked him if he were not afraid to follow and make tests with the big companies. "Afraid?" quoth Grout, "no, indeed, I am not. I will follow anything on wheels," and he immediately hustled out to the Stadium and returned very much satisfied. The Grout boys are getting ready to greatly increase their output, and the new factory, which is alongside of the old one, will be in running order September 1. Mr. Grout said that in his opinion the Gasmobile showed up in the tests superior to others, and it was conceded on all hands that the New Jersey production did splendid work in the hands of a brother of the company's manager.

The little Knox made additional friends by its demonstrations. It was looked after by Mr. Davis, who knows every inch of the little three-wheeler, and handled it superbly. Mr. Peckham, the Buffalo Locomobile manager, was well satisfied with his carriage's performance, and the Mobile young man was so confident that he gave an additional exhibition.

The Electric Vehicle Co. may be said to have the largest and most complete exhibit in its line. The Riker and Columbia electric and gasoline carriage are exhibited in a central, double-decked exhibit. There is a platform over the main exhibit. The company shows a variety of types for pleasure and business service, and it is doubtful whether there ever was such a complete and varied exhibit anywhere else as is shown by the company.

The Knox Automobile Co. shows only one model, and that the well-known three-wheeler gasoline type. The company's corner space is seen to advantage. Mr. Davis, one of the company's travelers, is in charge. The Locomobile company has expended a lot of money on an attractive display of its well-known vehicles, and the attendants are constantly answering questions and explaining the importance of the company's exhibit. The Mobile company seems to have planned a good setting, but the exhibit is not finished and decorators are still at work making the surroundings more complete.

The Stearns Steam Carriage Co. sustains the well-known reputation of E. C. Stearns for finely finished goods. The

Stearns steam carriage is not a whit behind the Stearns bicycle. There are some radical departures of construction in this company's steam carriage which have already been explained in this paper. The Stearns exhibit is attractice and compact.

The Gasmobile exhibit is composed of the well-known Gasmobile and a launch. A touring Gasmobile is shown. The young man in charge states that the capacity of the factory is not yet equal to the demand for the company's goods. This company makes several types and the excellent work done in contests and other service has marked this product as exceptionally good. It was remarked during the tests in the Stadium that the Gasmobile was actually noiseless and little vibration was noticed.

Grout Bros., of Orange, Mass., show several of their steam carriages, and C. B. Grout, who is at present in Buffalo, expects an addition in a few days in the shape of a new dos-a-dos. The Kidder Motor Vehicle Co., of New Haven, has produced a high-class looking exhibit of two carriages, in charge of Secretary Barnes, a courteous young college man. Mr. Barnes, by the way, was one of the few who refrained from accepting the judges' invitation to take the carriage out to the Stadium for tests. Mr. Barnes explained to the writer that it was not fair to ask an exhibitor to take an entirely new carriage, which had not been tested and which was used exclusively for exhibition purposes, and give it severe tests, but that it could be done by some exhibitors who were prepared for it. It was his opinion that preliminary warning should have been given exhibitors, so that a suitable carriage might have been prepared.

The Overman Automobile Co., of Chicopee, Mass., shows the Overman steam carriage, and a representative from the New York office, 81 Fulton street, has charge, Mr. Overman being in Europe. The Victor runabout, which is fairly well known through being exhibited at shows previously held, and the Victor runabout with Victoria top, are shown. Thoroughness of construction has always been the aim of A. H. Overman, and quality rather than quantity is in evidence in the Overman automobile, just is it was in the Victor bicycle.

The Conrad Motor Co., of Buffalo, is well represented as regards its popular gear, and now that it is in its new factory, with additional facilities, its output has been increased. The company is now paying attention to the manufacture of the complete automobile, and its showrooms already contain evidence of its handiwork in that direction. The company will make traps, phaetons, brakes, surreys and runabouts, both gasoline and steam. The Buffalo Electric Carriage Co. shows the Buffalo Electric Stanhope. The company is well known in carriage building and is one of the few carriage concerns that have tackled automobile building. A feature of the Buffalo Stanhope is its wood wheels and hard rubber tires, wood reaches, and regular carriage style generally. The Woods Motor Vehicle Co. shows a complete line of electrics. C. Barrows, a representative from the New York office, is in attendance.

The De Dion-Bouton Motorette Co., of Brooklyn, makes a good display of its vehicles. Mr. Bramwell, the company's advertising man, has charge of the exhibit, and is also kept busy between times demonstrating on Elmwood avenue, which parallels the exposition. Mr. Bramwell is a great believer in the future of the De Dion motor, and points with pride to the fact that four of the oldest manufacturers of bicycles, the George N. Pierce Co., Waltham Mfg. Co., Warwick Cycle Co., Peerless Mfg. Co., and many others, have adopted the De Dion for their carriages. The company shows several styles of the De Dion carriage. A superb $2,000 Rockaway is the prize feature. Mr. Bramwell never considers it too much trouble to talk to callers, though some of the questions asked would tax the patience of a saint.

The Baker Motor Vehicle Co., of Cleveland, O., shows a fine line of its electric carriages, which are becoming more and more prominent every day. The lightness and compactness of the Baker line is a feature of the exhibit. The Haynes-Apperson Co., of Kokomo, Ind., exhibits its gasoline carriage, and as

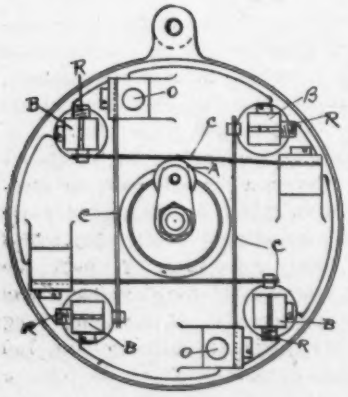
this carriage has done so well east and west in actual tests, the company's show at Buffalo is meeting with its reward.

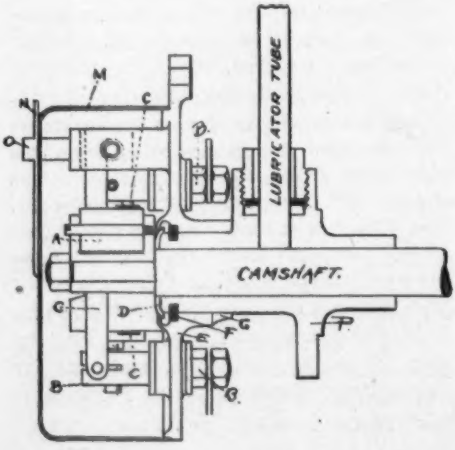
The Milwaukee Automobile Co. was a late arrival, but now has its exhibit in order and it is attracting the same attention as it did at the Chicago show last winter. The Milwaukee people are aggressive and can always be depended upon to make a good showing. The company is giving away a little booklet entitled, "Our best salesman and thirty reasons why it is desirable for intending purchasers to look into the merits of the Milwaukee before buying elsewhere." Mr. Starkweather was at the show recently.

(Continued next week.)

# LATE MECHANICAL CONTRIBUTIONS

Since motors having more than one cylinder are now used in a majority of gasoline vehicles built in this country, and a tendency toward three and four cylinders is shown, the illustration showing the construction of a commutator for breaking the primary circuit four times, for use on a four cylinder engine, may prove interesting, especially as it combines simple and practical ideas in construction. The same general plan may be used in making a commutator for either one, two or three cylinder motors by placing the contact springs in triangular form for a three cylinder motor; using two opposite to one another for a two cylinder, and one only for single cylinder motor. The commutator is formed of an aluminum casting or back, which is fitted round the two to one or camshaft bearing, and carries thereon the four contact springs C C C C, Figs. 1 and 2, one for each cylinder. These contact springs are plain, straight blades, provided each with a circular plug of a special metal at the free end at the point where contact is made when the flow of current is required for sparking or igniting the compressed explosive mixture in each individual cylinder. These blades and plugs are so made that when the spring takes a permanent set, or the contact plug wears down, it can easily and promptly be reversed and used on the other side. It will be seen that the contact plug projects to an equal height on each side of the blade. These springs or blades C C C C are each deflected in turn by the fibre roller, which requires no lubrication, seen in Fig. 1, carried in the outer boss of a small crank on the cam or two to one shaft, to which it is secured by a hexagonal nut. Such deflection of the blades causes the plugs set in their ends to presss against solid contact screws R R R R in the insulated terminals B B B B. These contact screws are formed of the same metal as the plugs B B B B and are fixed in posts which pass through the



aluminum back, from which, however, they are carefully insulated. The wires to the various induction coils are attached to these posts as shown in Fig. 2.

The fibre roller deflects the spring till the plugs on the blades make contact with the contact screws, after which some slight further deflection takes place, which causes the plugs to be slightly scrubbed across the ends of the contact screws, thus keeping a perfectly clean, bright contact without undue wear. By having the spring blade fixed at one of its ends, and the contact made at the other, the largest and quickest break is obtained.

The aluminum back is secured on the cam or two to one shaft bearing by a recess cut in its collar at the bottom, as shown at G, Fig. 2, so that when the back is revolved a half turn, for the purpose of advancing or retarding the ignition in the cylinders, it can be pressed towards the cam or two to one shaft bears sufficiently to place two half-washers in groove in same, which on back being revolved again effectively prevents the back coming off and also provides good contact.

Trouble from oil getting on to contacts is avoided by the lubricant being thrown by the deflector D, Fig. 2, into groove in back, whence it obtains egress by holes in same, one of which is shown at E, Fig. 2. The whole fitting is enclosed in the spun aluminum cover M, Fig. 2, which is retained in its position by a wire cotter N passing through two of the posts O O, Figs. 1 and 2.

The Autocar is authority for the statement that this commutator is operating successfully and from its obvious simplicity there is no reason why it should not.

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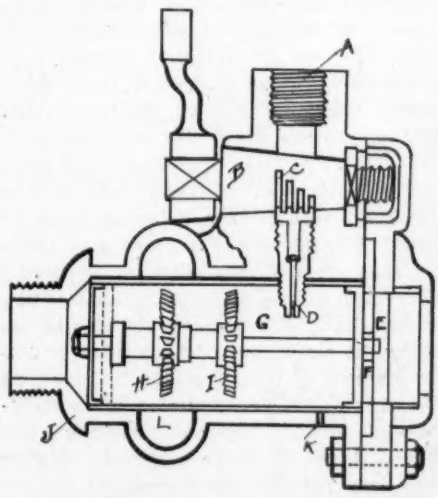
### A Windmill Carbureter

The accompanying drawing shows a sectional view of a device recently introduced in England and which was the subject of an English patent two or three months ago. It is intended to mix air and gasoline and, so far as use on motor vehicles is concerned, is a novelty although revolving wheels and fans have been tried in innumerable cases in connection with larger gas-producing apparatus.

The gasoline is fed by gravitation through the opening A on to the plug of the cock B. In the plug of this cock are cut four shallow chases C of various lengths, and passing nearly, but not quite, wholly round the plug. It will be seen that by turning the cock the longer chase on the plug first admits gasoline to the jet D, and further movement brings the remaining three chases one after the other under the supply, and so ultimately increases the feed to the maximum. The air enters through the aperture E in volume controllable by a pierced disc F. The suction of the motor causes the gasoline to spray through the nozzle D into the mixing chamber G, the passage of the air through G causing the fans H and I to turn rapidly in contrary directions to mix the gasoline and air. The mixture then passes to the engine cylinder by the tube J through screens of metallic gauze, which arrest any particles of gasoline not properly taken up by the air. A drain hole is pierced at K to prevent the flooding of the carbureter in the event of the cock B not being turned off when the motor is stopped.

The carbureter is kept warm by the




passage of a portion of the exhaust gases round the semi-circular jacket L. The carbureter is fitted in any convenient position by means of a lug, not shown. The carbureter should be fixed as to the

junction J a little below the induction valve chamber and some two or three inches beneath the bottom of the gasoline tank. In starting up the motor the cock B should be turned on full to assure a full flow of gasoline to begin with, dripping from the drain hole K, showing when the feed is satisfactory. When running, experiment with the cock B will soon show the minimum amount of gasoline which will serve at any desired speed.

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### Hints on Case-Hardening

"How to case harden, color, and anneal with granulated raw bone," are subjects treated exhaustively in a work on the subject issued by the Rogers & Hubbard Co., of 4 High street, Middletown, Conn., a copy of which may be had for the asking by people engaged in the motor industry. With the consent of the publishers the following special instructions and suggestions are presented:

In the interests of economy old bone may be used more than once. After having been used it must be dried thoroughly; it will then be coal black. This can be used again by adding new granulated raw bone, about one part new to two parts of the old. Place upon your bench a box each of the granulated raw bone and the bone black; one is white, the other black; a mixture will make a gray. For very small work, screws, etc., use a dark gray, i.e ., two or three parts bone black and one of the raw bone. For very large work, use white or clear raw bone. A little experience will show the proportion of raw bone and burned bone to be used for different sizes of work. The different shades of gray make an easy and reliable guide after having once become familiar with them. The Pameacha raw bone may be used in exactly the same way. The shades of color are not as true a guide, however, as the Pameacha raw bone is quite dark-colored itself. Constant burning will finally turn the bone white—it is then valueless for case-hardening.

Concerning the use of bone and charcoal the book says the following is recommended by a reliable party as a practical and economical method of using granulated raw bone: For ordinary iron work, such as set or cap screws, etc., use one part granulated raw bone to three parts pulverized charcoal, thoroughly mixed; in this we pack our work in iron pots, then sprinkle a little charcoal dust over the top. In case-hardening Bessemer steel or fine small iron work, we diminish the quantity of bone somewhat. Pameacha raw bone may be used in the place of the granulated raw bone, but the proportion of charcoal should be somewhat diminished.

Parties who have had little experience in case-hardening may find the tell-tale a help to them. The tell-tale consists of a piece of round iron, as near the size of the work to be hardened as possible,

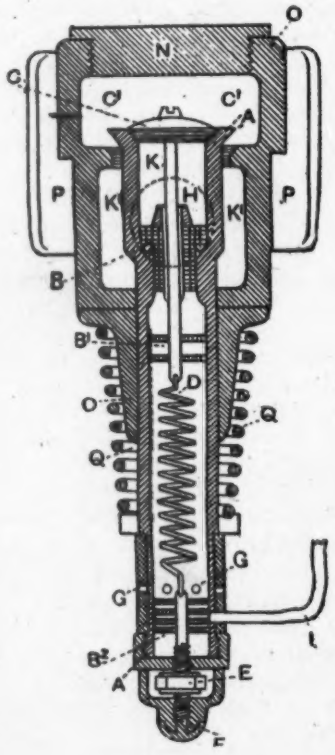


Fig. 1.

that reaches down into the centre of the pot, extending up through the cover about an inch—or just enough to make a hold for the tongs. The hole in the cover should be just large enough to allow the pin or tell-tale to slip out readily. When you think the work has been in long enough, remove the tell-tale with the tongs without disturbing the pot,

and plunge it immediately into cold water. There may be one or more telltales in the cover, as desired. If telltale shows the work to be hardened to sufficient depth, dump as instructed, otherwise leave in longer; test as before.

To anneal with Hubbard's granulated and Pameacha raw bone: Pack the work to be annealed about the same as for case-hardening, but it is not necessary to keep the pieces separate, using the bone that has been burned a number of times until it is almost white. Place in the oven and heat until it is heated through to a cherry red. As soon as the work has reached the required heat stop the blast and if the oven is not required for further work let the boxes remain in the furnace and cool down with the fire. Upon removing the boxes from the oven cover them with warm ashes, old burned bone or air-slacked lime, so as to retain the heat as long as possible. Do not remove the work from the boxes until all heat has passed off. The more gradual the cooling the better the results.

For annealing low carbon steel, for bars 6½ inches in diameter use 9 inch iron pipe for packing box, other sizes in proportion. Pack the steel in a mixture of half charcoal and half bone that has been used one or twice. This proportion does not tend to recarbonize more than 5 per cent, and in all cases it is sufficient to maintain the amount of carbon originally in the steel. Great care must be used in heating steel for annealing, heating it only to the same degree of heat that you would for case-hardening, i. e., a good cherry red. Heavy bars 6 inches to 7 inches in diameter should be placed in the furnace in the morning and left in until the next morning, but no blast or draft should be allowed on during the night. Upon removing the boxes from the furnace, cover them with warm ashes, old burned bone or air slacked lime so as to retain the heat as long as possible. Do not remove the steel from the boxes until all heat has passed off. Smaller bars are treated in exactly the same way except the length of time required for heating; this diminishes as the size of the bar is reduced.

To anneal small or thin iron castings pack them in a cast iron pot with a mixture of bright cast iron turnings or filings and pulverized charcoal, half each; have a layer of the mixture between the castings, it will help to keep them from warping and heat them more uniformly. Place the pots in the oven and bring to a good bright cherry red, then let them cool off. If it is necessary that they be very soft, hold them at a bright cherry red for two to three hours. It is absolutely necessary that the castings are left in the pots to cool off.

In order to obtain the best results it is necessary to employ a furnace that gives and maintains a good uniform heat.

### Combined Inlet and Exhaust Valve

It is often found, says the Automotor Journal, that several inventors hit upon the same idea at approximately the same time, and it is always interesting to compare the practical outcome of the efforts of each. There are many reasons why the combination of an inlet valve with the exhaust valve of a high-speed oil motor should be advantageous. Amongst

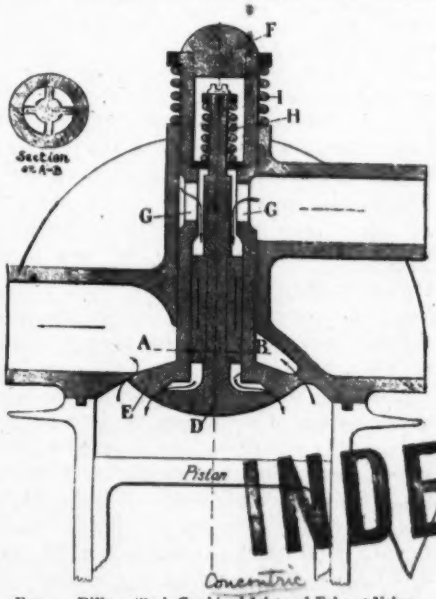


FIG. 2.—D'Equevilley's Combined Inlet and Exhaust Valve.

these we may mention the limited space available for sufficiently large valves, the necessity for decreasing the resistance to the passage of the gases from and to

the cylinder, the desirability of cooling the exhaust valve—and in some cases of warming the incoming mixture—and the reduction of space occupied by the valves themselves. It is true that, on the other hand, there may be disadvantages in such an arrangement, and that reliability and ease of inspection may suffer, but these are points which practice can alone can determine.

In the accompanying drawing three such devices are shown, in all of which the inlet valve is formed inside and concentric with the exhaust valves.

In Fig. 1, the exhaust valve, A, is shown open, allowing the burnt gases to pass from the cylinder at C, into the chamber, K1, and thence to the exhaust pipe, indicated by the dotted circle at H. This valve is hollow, and has a stem instead of the usual valve-rod. The sleeve slides in the valve casing, O, and is normally held in its shut position by the string, Q, being opened by a cam in the usual way. The inlet valve, C, is held against its seating by the light spring, D, (adjustable by the nut, E), and is free to open automatically in the guides at B1 and BB. The sleeve, A, contains wire gauze filters at B and B2, and air holes, G, are drilled through it as shown. An outer cover, G1, also perforated, allows the holes, G, to be more or less opened to the atmosphere. Petrol is fed by a flexible pipe, I, to the gauze, B2, and it is then carried by the inrushing air during the suction stroke up to and through the filter, B. The mixture thus formed is warmed by the heat from the exhaust gases before passing through the valve, C, to the working cylinder.

In Fig. 2 the enlarged and hollow exhaust valve, E, is normally held on its seat by the spring, I, and is opened by a cam pressing on the cap F. The sleeve of this valve is perforated with holes at G, and it is so shaped internally as to form a guide and a seating for the admission valve, D, and to also contain the light spring, H, which closes the valve, D. In this design the carbureter is connected with the pipe leading into the holes at G, and there is no flexible connection required. A cross section of the inlet valve spindle and guide is shown in the drawing.

The device shown in Fig. 3 differs chiefly from either of the foregoing valves in that the inlet valve, 48, has a hollow stem with perforations at 49, down which the explosive mixture is drawn through the chamber, 50, by the engine. A flexible or sliding connection with the

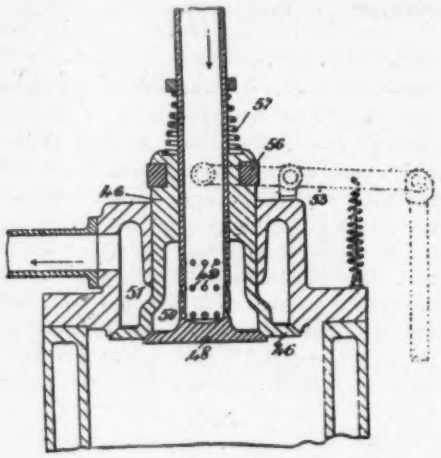


FIG. 3.—Dawson's Combined Inlet and Exhaust Valve.

carbureter is of course necessary. The exhaust valve, 46, slides in the main casting and is operated by a forked lever, 53, which moves alternately in accordance with a cam or with the outside spring shown. The inlet valve is normally closed by the light spring, 57, and opens atmospherically. The chamber, 51, in the exhaust passage allows the lower part of the exhaust valve, and consequently the inner chamber, 50, to become heated by the burnt gas.

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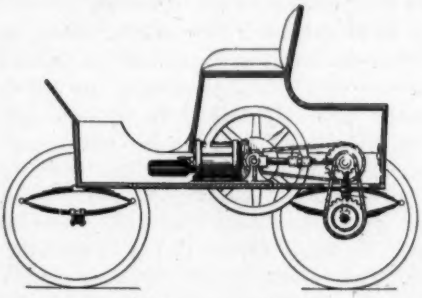
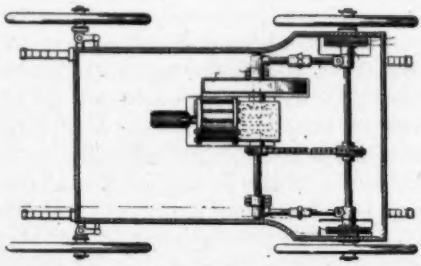
Under a French process, wood, treated to a bath of magnesium sulphate, is said to become fireproof. Lead electrodes are used, the one being separated from the other by a sail-cloth diaphragm. A direct current of 110 volts is passed through the wood, which extracts the sap and replaces it by non-inflammable salt. It is said that the process has been successfully applied to the manufacture of paving blocks. The rate of energy is about half an electric horse-power at 20 to 30 volts per cubic metre. The treatment of the wood lasts about 48 hours.

# IN THE WORLD OF INVENTION

Patent No. 679,366, dated July 30, 1901, to Rolla R. Darling, Cleveland, O., assignor to the Beardsley & Hubs Mfg. Co., Mansfield, O. The object of the inventor is to provide a transmission of power which will overcome the difficulties incident to the movement of the carriage body on the springs. The illustration Fig. 1, a sectional elevation, shows the arrangement of parts. Fig. 2 shows a plan view. The power is transmitted by a single chain to a shaft supported on two pillars which are rotatably attached to the rear axle.





This shaft contains the differential and is fitted at each end with a sprocket from which a chain runs to a sprocket on the driving wheels. There are also two supports between this shaft and the driving shaft of the engine. These supports are rotatably attached at each end, and thus allow a vertical motion of the intermediate shafts without altering their relation to the driving shaft. Both the vertical pillars and the supports are formed of two parts, provided with a central member similar in form to a turn buckle, which provides for the ready adjustment to the proper length.

### A Mud Scraper

Patent No. 679,631, dated July 30, 1901, to George W. Manson, New York, whose invention consists of a mud guard for bicycles, composed of a wire support to be attached to the axle of either wheel and arranged at its outer end to receive a rubber band designed to come in contact with the periphery of the tire, thus, during its rotation, removing mud or dirt. Various devices of this sort have been presented from time to time, none of which have been successful.

### To Attach a Motor

Patent No. 679,555, dated July 30, 1901, to Henri Dufaux, Geneva, Switzerland, relates to a tubular frame-work, designed to receive the motor and accessories for a motor bicycle, after which the whole may be attached by means of bolts, provided for the purpose, to the frame of an ordinary bicycle without changes in the construction of that machine. The whole may be readily removed leaving the bicycle in its original condition.

### A Retrograde Movement

Patent No. 679,688, dated July 30, 1901, to W. W. Small, Cherryfield, Me., covers a complicated device whereby it is intended that the front wheel of a bicycle or other vehicle in which a steering wheel of similar character is used, shall be held rigidly in position in its relation to the frame until moved by action of the steering handle. While it is stated in the

patent that the object is to render the machine readily steerable without the use of the handles the opposite would probably be the case, as will be readily understood by any one who has ever attempted to ride a bicycle, hands off. The patent also covers two plates, suspended in the forward part of the frame, to steer by pressure of the knees without having to touch the handle bars!

### New Arrangement for Boiler

Patent No. 679,471, dated July 30, 1901, to John F. Byers of Ravenna, O., covers details of construction of a motor vehicle in which the motor and steam boiler are attached to the frame or running gear instead of to the body, and the objects are to provide for carrying the boiler on the axles of the front or steering wheels with its lower end below the level of the wheel centers, and to provide a running gear that allows the wheels to conform to an irregular road surface without straining the attached driving mechanism. Fig. 1 shows a plan view with the right hand portion removed. The front axle is of two parts, each section secured to a ring surrounding the boiler. A partial elevation of this axle is shown in Fig. 2, from which it will be seen that each portion is in the form of a bell crank. These are attached to the ring previously mentioned by pivots at the inner, lower end and at the other by means of a horizontal support. Thus it will be seen that allowance is made for the raising of either wheel, by the inequalities of the road, witout swinging the boiler and the ring in which it is supported out of position. The rear or driving axles are connected by the usual differential gear and are supported within the tubular sleeves, to which is attached the gear casing which surrounds the differential gear and the engine shaft, to which, in turn, is attached a pinion meshing in a gear surrounding the differential. The cylinders, with their respective cross-head guides, are rigidly attached to the tubular reach and the connecting rods are led into the gear casing previously described where they operate upon the engine shaft in the usual manner. This shaft is of sufficient length to reach outside the casing and the eccentrics are attached to its extremities.

*Fig. 1.*

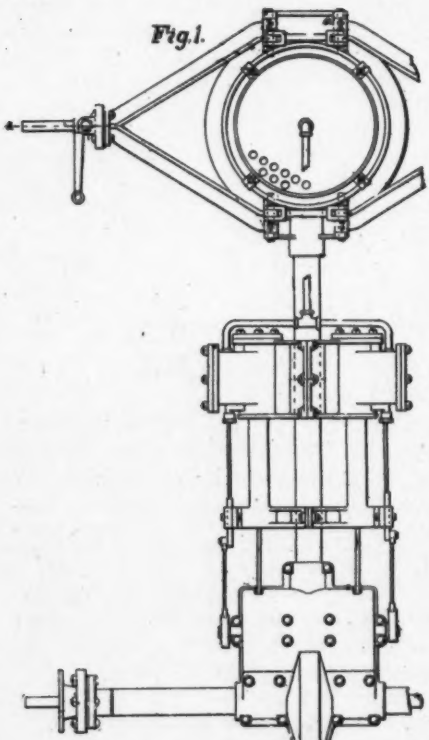
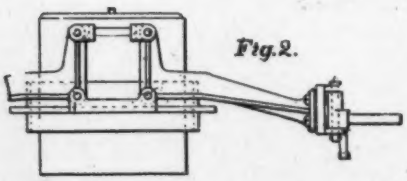


*Fig. 2.*



### Spring-frame Bicycle

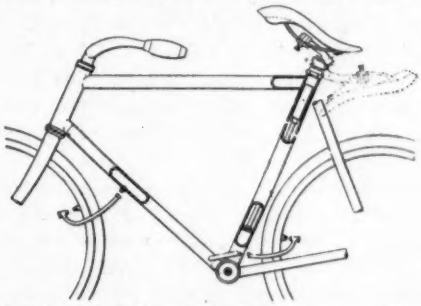
Patent No. 679,565, dated July 30, 1901, to Dalus W. Judson, Barrie, Canada. The object of this invention is to provide a spring frame for bicycles wherein a vertical motion of the central portion of the frame containing the saddle is provided for without materially altering the appearance of the frame. A tubular member is fitted within the seatmast tube and contains at its upper end a lug for receiving the upper end of the rear stays. This lug projects through an opening in the rear portion of the seatmast tube. The lower end of this tubular member is provided with a hollow screw provided at its lower end with a turn buckle, which in return receives the up-

per end of a helical spring, the lower end of which it attached to the crank bracket. The lower end of the hollow screw above mentioned is provided with a downwardly opening valve. The crank bracket contains the sleeve or lining made in two sections, the outer end of each of which is rigidly connected to the adjacent end

of the rear fork of that side of the frame. The rear stays are pivotally attached to the outward ends of the forks at the lower ends and at the upper ends to the lugs for their reception before mentioned. A downward motion of the seatmast tube will tend to move the tubular members supporting the upper ends of the rear stays and enclosed within the seatmast tube against the resistance of the helical spring. In so doing the valve, before mentioned, will readily open, but on tending to return to its original position the air within the seatmast tube will close this valve thus restricting its return. Within this valve is drilled a diminutive hole through which the air escapes under these conditions thus allowing the frame to gradually resume its normal position. The device creates a favorable impression aside from the last mentioned portion, which seems to be an unnecessary complication.

### Of An Old Family

Patent No. 679,512, dated July 30, 1901, to Melvin F. Rock, Homer, N. Y., covers a pump, for bicycles, within the seat mast. The seat post is a portion of the device and the horizontal portion, to which the saddle is clamped, is pivoted to the upper end of the vertical tube in such a way that it may be swung backward out of the way. The plunger of the pump works within the seatmast tube which is sealed at the bottom, near the crank hanger. The operating rod extends from the plunger to the seat post and is threaded at the top to receive a tubular handle designed to be screwed thereon. When not in use this tubular handle is slipped down over the pump rod and inside the seat post, the whole being held in position by a spring catch. At the lower end of the tube is provided a coup-



ling for attaching a flexible tube containing the valve connection. The invention also provides for a short coupling tube joining the seatmast and the lower reach tube of the frame which is to be closed at each end and from this it is proposed to lead a flexible tube to the valve of the front tire. In this way the rider may, if he desires, pump both tires at once.

# CYCLE SPORT AND TRADE

New York, Aug. 3.—At Manhattan Beach this afternoon Walthour clinched his right to constitute, with Elkes and Stinson, the great triumvirate of American pace followers, between whom the national paced premiership now undoubtedly lies. He went to the front when he was ready just as convincingly as he did the week before in the race that broke the nerve and perhaps the health of Elkes. Further than that, he rode in a style that would seem to indicate that record figures were within his reach. The race was a 35-mile four-cornered affair with Michael, Nelson and McEachern as the other contestants. The physician said that Elkes was suffering from a paralyzed nerve in the shoulder. He did not start. In fact, the popular Glens Falls boy is undeniably in bad physical shape and not at all fit to do himself justice at this stage of the game. Michael made a wonderfully good showing, riding far faster than ever before. Michael led the first mile in 1:30, which is record time, and equaled the record the second mile. Nelson then took the lead and retained it until the eighth mile, when Michael again wrested it from him. Walthour was in last place. In the tenth mile he swept into the lead and held it to the end, beating McEachern by 3½ laps, who led Nelson by 100 yards, with Michael fourth, nearly a lap behind.

The order of the finish of the pursuers of Walthour was largely determined by accidents to all three. McEachern had a puncture in the eighth mile and lost a lap. Nelson weakened after 10 miles and had a puncture in the 15th mile. Michael was nearly a lap ahead of McEachern in the 34th mile, when he punctured and lost his tire. All the others passed him before he could get another machine. Some amateur contests preceded the paced race. Eugene Hammond, of New Bedford, Mass., won the two-thirds open, with Benyon second and Schreiber third. Hammond also won the two-mile handicap from the 60-yard mark in 4:26. Forrest (60) was second, and Schreiber (scratch) third. Bleecker, Babcock, Newkirk and Franz Krebs had a stubborn professional unlimited pursuit race and finished in this order. The distance was 4½ miles and the time 10:38 3-5.

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### Taylor Defeated by Kramer

Newark, N. J., Aug. 3.—In a straight out-and-out sprint that lasted for an eighth of a mile, at Vailsburg, this afternoon, Kramer beat Taylor by a half length in the final heat of the half mile circuit championship and resumed the lead in the national race with 22 points to Taylor's 20. Cooper and Wilson divided third money and increased their score a point apiece. Naturally Kramer's victory at his home was popular. The rejoicing extended to the racing men. The 5,000 people simply went crazy and in an instant the air was filled with hats.

Instead of playing he major's game by jockeying and giving Taylor a chance to beat him in the sprint Kramer took the lead at an easy pace. This he increased at the bell until, when he began his sprint on the backstretch he was fully under way and the major's jump was blocked. Kramer had a trifle the better of it as they entered the stretch. Taylor plugged his prettiest, but could not gain on the Jerseyman, who won by a half length.

In the trials Lawson and Cooper shut out Cadwell and Freeman; Kramer and Wilson qualified against Bardgett and Newhouse; Fisher and McFarland disposed of Housman, Collett and Gascoyne, and Kimble and Taylor beat Fenn and

Jenkins. Lawson failed to make good the showing he made on his debut at Syracuse, for Kramer and Cooper outrode him in the first semi-final. Fisher and Taylor were too fast for McFarland in this round. They met again in the first grand semi-final. Taylor won by a half length. After a lot of jockeying in the second heat Cooper made the jump from the bank. Kramer was too fast for him, though. Fenn rode a grand race in the five-mile handicap, winning in 10:58. The sick McFarland, who was given 100 yards, rode on his indomitable nerve and finished second. Gascoyne (50) was third, and Bedell (150) fourth. The 2:10 class mile handicap fell to Alexander (100) in 2:00 4-5, with Maya (80) second, and Apgar (120) third. Downing (scratch) rode to the front and deliberately sat up with a taunting remark to the referee. He was set down for the rest of the day.

The New Jersey mile championship fell to Tom Firth, with Teddy Billington second, and Gus Welsing took the open half, with Dove second and Garrabrant third. Harry Welsing won the two-mile handicap from scratch in 4:13; tthe handicap record being 4:12 4-5, held by Grady. Tom Firth beat Peter Van Cott in a 10-mile amateur paced race. He took the lead in the third mile and won by 400 yards in 18:26.

### Standing of the Men

New York, Aug. 5.—By their victories of last week the independent champions Kramer and Taylor have a big lead over Cooper and Fisher, the trust cracks, whose recent gains in the table have been mainly due to their qualifying for the grand semi-finals only. Lawson and Fenn are the most promising of the dark horses. Gascoyne is dangerous and may be looked to for occasional victories. McFarland is sick and not to be reckoned in the running at present. The score at the close of the Vailsburg meet on Saturday was: Kramer 22, Taylor 20, Cooper 12, Fisher 11, Wilson and Fenn 7 each, Gascoyne 5, Freeman and Lawson 4 each, McFarland and Kimble 3 each, Collett 2, and Houseman and Tom Butler 1 each. Bardgett, Newhouse and Jenkins alone of the championship eligibles have scored no points so far.

This week there will be a national circuit meet every day, winding up with meets at Asbury Park on Thursday, Madison Square Garden on Friday, and Manhattan Beach on Saturday. Next week the money chasers will be at Buffalo, when the amateur championships will also be run.

### Morrow Brakes in Great Demand

Some idea of the demand for the Morrow coaster brake in England may be gleaned from the fact that Green & Houk, the agents there, are hopelessly behind their orders. They have inserted an advertisement in the cycle press to the effect that they have arranged to devote a part of the increased supply they are now receiving to filling orders from riders whose previous efforts to obtain supplies have been vain. The rider who thus renews his order must cut out the advertisement and take it to his cycle maker, who will forward it to Green & Houk, and this will secure immediate preferential delivery of such crowded out orders.

### Arend Wins a Big Prize

The German Derby was run at Cologne, on July 21, and a large number of prominent riders took part. The heats were won by Huber, Arend, Seidl, Grogna, Broka and Heller, and the consolation race by Ferrari. The first semi-final was an easy one for Seidl by half a length from Arend. In the second semi-final Huber disposed of Heller. The four riders then run three heats. Huber won the first and Arend the second and third. The lap race was captured by the Italian, Ferrari, while the final in the tandem race was a runaway for Huber-Seidl.

### To Prevent Accidents

The late accident to Platt-Betts, an English racing man, who fell from touching his pacing machine, has brought out a number of suggestions for devices to prevent similar occurrences in future. One of these comes from Warner Jones, a veteran correspondent and engineer who suggests that pacing machines should have a small free-wheel carried at the back level with the hub of the bicycle.

Mr. Jones thinks this would prevent accidents, as the impact of the front wheel of the paced bicycle against the free-wheel on the pacing machine would cause the free wheel to revolve. The idea is a good one, says the Cyclist, but not so good as that suggested by another engineer, who placed a wheel horizontally at the back of the pacing machine at such a height that it bore against the steering socket of the following bicycle. This horizontal wheel was adjusted so that the front of the paced machine could not foul the pacer, as it projected far enough to touch the socket, and so, as it were, hold off the paced from the pacer. This was a splendid idea, as it kept the front wheel of the paced machine laterally free, so that steering was not interfered with, and this is why we consider it superior to Mr. Jones's suggestion.

### Sanger Bankruptcy Proceedings

The bankruptcy proceedings of the Sanger Handle Bar Co. were closed in Milwaukee last week and the trustee, Oscar Schloemilch, was discharged. The creditors will receive a dividend of but 5½ per cent. The total claims filed and proven amount to $36,534.74. After paying the expenses, the trustee has $2,059.33 for distribution. The Sanger company was one of the most prominent concerns. At one time the American Bicycle Co. was anxious to secure control of its plant, but the figure demanded prevented a transfer.

### Zimmerman's Coaster Brake

Syracuse, Aug. 5.—A coaster brake, which has been invented by John Zimmerman of Syracuse, will be placed on the market by the Industrial Machine Co. The concern is substantially capitalized. The company has leased the plant of the Phoenix Knife Co., Phoenix, N. Y., where the brakes are being manufactured, The brake is fully protected by patents. It was the idea of Mr. Zimmerman to make a common-sense brake, which would not require adjustment, which would fit any standard hub and in which there would be no lost motion. A model brake was in use all last season yet is as good as new. After the sprocket gear of the rear wheel is removed, a collar, on which there is a friction plate, is screwed on. In this collar are pockets to receive part of the ball and a sprocket gear is placed over the collar, which in driving, receives the other part of the ball. When the rider stops pedaling, the sprocket gear will receive the whole ball, allowing a free coast. Two wedges with inclines fit on the side of the gear. A stationary ring is fastened to the fork of the bicycle frame and two rollers which roll up inclines, force the wedges to the center, expanding the friction plate against the lock-nut.

### Tires for Motor Cycles

A rider of experience warns owners of motor bicycles against the use of light tires. A motor bicycle, he says, weighs from 75 to 100 pounds, and even when, as is the case with the majority, the driving is done by the back wheel, there is a great deal more strain upon the tire than when the driving is done by pedalling. Apart from the weight, the tire has to stand the jerky strain incidental to the intermittent propelling force exerted by the motor, and it is found that this produces a slipping tendency which speedily wears the rubber tread on the driving wheel tire. It is of course when starting and when going slowly that the jerkiness is most apparent, because when full speed is got up the drive is more uniform. On bicycles the jerkiness is communicated to the driving wheel more noticeably than when leather or hide belt drives are used, because the advantage of the belt-drive is that the belt slips slightly whereas the chain-drive is positive. Two-inch tires are the very smallest that should be used, and if the driving wheel tire is expected to enjoy a reasonably long lease of life, it should be a special motor cycle tire, with a compressed rubber tread. For the steering wheel, an ordinary two-inch heavy roadster tire is sufficient.

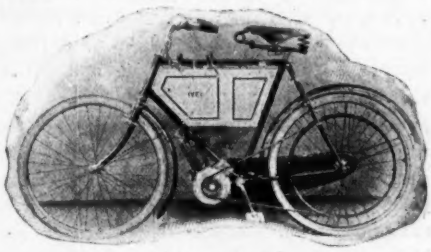
### About Spring Seat Posts

The spring seat post, which is a younger brother of the Hygienic cushion frame, has had quite a sale this season, especially the one known as the Reeves' Ideal made in Saginaw, Mich. The Buffalo agent, who controls the New York state territory is D. Orvis, who has had a re-

markable success. Orvis says that those who cannot afford to buy cushion frames buy a good spring seat post, and that the latter paves the way for the more elaborate cushion frame later on. In other words, it gives the rider a taste of the benefits derived from the use of some vibration absorber. Mr. Orvis is said to be the best agent the Saginaw manufacturer has.

### English Motor Bicycles

One of the latest motor bicycles is that of Daniel Albone, of the Ivel Cycle & Motor Works, of England. Albone has been in the cycle trade so many years that few can remember the beginning. The motor used is of 1¼ horse-power. The complete outfit is, apparently, one of



and neatest yet produced. The Bayliss & Thomas Co., also an English concern, has produced a machine in which the location of the motor is similar. The motor of at least one of these machines was supplied by an American maker.

### Motor Bicycles In Omaha

Omaha, Neb., August 5.—Louis Fleschер, one of Omaha's most enterprising dealers, has in construction what promises to be a complete and durable motorcycle. "The motorcycle," said Mr. Fleschер, "is in the formative stage of its existence, and I hardly believe the machines will become numerous in the west until the end of summer, but I expect that 1902 will find them popular. The prices at which machines are offered are moderate, the general price being from $150 to $200, while motor attachments for regular bicycles are quoted at from $115 to $125. "My motorcycle will be on the lines of a bicycle, and from a rear or front view will present little difference in appearance. My motor will be placed at the bottom of and behind the seat mast, necessitating a 6-inch extension of the frame."

"While the demand for motorcycles in Omaha this year will not be enormous, I do not anticipate trouble in disposing of more than I can manufacture. Many prospective purchasers visit me daily, and you would be surprised at the number of ladies who come in to inspect the machine. When I get better facilities and things running along smoothly, I expect to be able to turn out from three to six machines complete a week."

### A Veteran and An Artist

A man with a paint pot boarded a Buffalo car the other morning and an Age man, who happened to be on board, recognized the familiar features. He was none other than E. R. Drew, who, for nearly a score of years, painted the name Columbia from Maine to California. Drew was given a general roving commission, about 1880, by the Pope Mfg. Co., to paint the words Columbia Bicycles on fences and boards all over the country, and right well did Drew do his work. The writer has met him on mountain and plain and has seen his trail in the most unlikely places in many corners of the American continent. One thing Col. Albert Pope asked him not to do and that was not to deface natural scenery. Drew faithfully refrained, leaving the less appreciative advertising representatives to mar nature's beauties. It is to the everlasting credit of Colonel Pope that he set an example to the pill and plaster venders who, with their nostrums, have invaded the most beautiful spots. The combine put Drew out of business so far as the Columbia is concerned, but he is wielding the paint brush for others.

### Retired Racers in Business

It will interest followers of bicycle racing to know that M. C. Dirnberger, who hailed from Buffalo, is likely to become a famous legal luminary. Dirnberger was for a time the principal star of the Crimson Rim team, of Syracuse, and did first-class work. Dirnberger saved enough money from his winnings to take a two years' course at Cornell, and was later admitted to the bar, after

preparing himself in the law offices of Bissell, Carey & Cooke, the firm of which ex-President Cleveland was the head. The latter's desk is still in the offices and is used by Mr. Bissell, who was postmaster general in Mr. Cleveland's cabinet. Dirnberger, on a recent Sunday morning, was found hard at work in his firm's offices. He has risen so rapidly that he is now managing clerk and often tries cases for his firm.

Louis A. Callahan of Buffalo, who with his brothers, Charles and James, were at one time the best Buffalo professional riders, is now successfully engaged in the ticket brokerage business. The Callahan boys' father is an old Buffalo ticket broker, but Louis A. is said to be the greatest of the Callahan family in the line, and was recently selected by the railroads as a leader for prosecution because he was doing the most business. As the courts declared the anti-scalping law to be unconstitutional, Louis thinks he will make them pay for his arrest and in the meantime is doing a land office business. Louis is assisted by several alert young men, among them being F. A. Foell, who was once well-known on the track.

### An A. B. C. Race Meeting

An unique meeting was to take place in Paris, on July 28, on the famous Princes track. Only riders of A. B. C. machines were to take part. Such riders as Bauge, Lesna, Miller, and many others of fame were entered. Speaking of this meeting the Paris cycle papers take occasion to score the French makers, who a few years ago would spend small fortunes for the possession of human racing stables, while now, with the exception of one or two firms, they have given up pushing their machines through the riders. That the A. B. C. is making quite a hit and receiving fair returns may be ascertained from the fact that the proportion of American bicycles sold in the country is quite large.

### Martin Now a Promoter

H. C. Martin, the well-known pioneer Buffalo dealer in bicycles and one of the best salesmen in the country, drew out of the Kensington Automobile Co. some time ago, accepting a fine residence in part payment for his stock. Mr. Knowles, president of the Kensington Automobile Co., bought both Martin's and John Gibson's interests, paying, it is said, in the neighborhood of $100,000 for the control. Martin is often seen about Buffalo in his electric auto and is now a promoter. Gibson is doing well in the automobile storage and repair line on Franklin street and is negotiating with several firms for an agency. It is not known definitely that the Kensington Automobile Co. will remain in Buffalo, as Mr. Knowles is in correspondence with several cities that are looking for factories. The plant at Kensington is quiet at present.

### Stinson Defeats Nelson

Stinson and Nelson met in a 25-mile race at Boston on Tuesday of last week. The race was originally billed as a three-cornered contest, Champion being the third man. As a result of the latter's accident at Hartford, Monday, he was unable to compete, and the management arranged to substitute Moran for Champion. After everything had been arranged it was discovered that Moran and Nelson had agreed not to ride against each other until August 10. It was anyone's race up to the 24th mile, when, in an effort to overhaul the leader, Nelson put too great a tax upon his strength, rode himself out and lost his pace, thereby permitting Stinson to romp home a winner as he pleased.

At Providence the next day Nelson showed a return to form and defeated Stinson in a 25-mile race. Stinson, however, lost two laps through trouble with his motors.

### Rain at Vailsburg

Newark, N. J., Aug. 4.—Rain caused a postponement of the Vailsburg races this afternoon. The chief event scheduled was a match race between Kramer and Fenn.

Two months ago the council of Salt Lake City passed an ordinance allowing cyclists the use of the sidewalks in certain parts of the city. The mayor very properly vetoed it. Then the cyclists formed the Wheelmen's Protective Association and gained members so rapidly as to show the law-makers that they

intended to have something to say about the condition of the streets. The council is now considering a new ordinance under which paths are to be built in the center of the streets. Where there are car tracks, two paths are to be laid, one on either side. The cyclists seem to have scored a complete victory.

Some months ago Fred Merrill, a wide-awake dealer in cycles in Portland, Ore., conceived the idea of offering prizes for designs offered by amateurs for the purpose of advertising his business. The result was surprising and the contest developed a number of excellent ideas, some of which have been presented to readers of this paper. The award of prizes has just been made, the first, a Rambler bicycle, going to W. R. Walpole, now a resident of Portland, but at one time with Ames & Frost and later with Sieg & Walpole, Chicago. Seven prizes were offered ranging from a bicycle to a credit voucher for $2.50. The plan was a good one for Merrill, who received suggestions and drawings from all parts of the northwest.

L. M. Wainwright has been appointed receiver of the Patee Cycle Co.'s business. Such is the irony of fate. The factory now occupied by Patee was founded by Wainwright, who organized the Central Cycle Co. That concern failed and the place was sold to Hay & Willits. They failed and sold it to the Outing Mfg. Co., which also failed. And now, on the occasion of the fourth failure the original owner has been made receiver. Mr. Wainwright is the manager of the chain plant of the American Bicycle Co. at the factory formerly owned by the Indianapolis Chain & Stamping Co.

The Chater-Lea Co., an English concern which has long made cycle fittings on a small scale, is now making a set of cycle fittings specially adapted for motor bicycles. The head, rear hub, and free-wheel clutch are of the type used in tandem bicycles, while the bottom bracket is of the eccentric type, to enable the chain to be adjusted without interfering with the motor of the driving gear.

The strikers at Vailsburg won their contest for increased purses. The prizes offered, so far, have amounted to $300 each Sunday. The men demanded that the amount be increased to $380, so that the first in each event should receive $100. The management replied that the purses would remain the same and added that paced races would be as good cards as the sprints. Eventually a peace conference was held. It is now announced that the first prize in each event will hereafter be $100.

A race meet promoted by local dealers occurred at Terre Haute, Ind., on Saturday. B. Williamson of Chicago won first prize in the mile handicap. Orlando Webber of Milwaukee was favorite in all the races in which he started. He won the mile open but lost the mile and two-mile handicaps and was compelled to retire in the five-mile pursuit on account of an accident to his machine.

The final transactions in the sale of the Keating plant to the Eisenhuth company were to have taken place at Middletown, Conn., on Saturday. A representative of this paper was in telephonic communication with Mr. Keating that afternoon, but he declined to say anything for publication. A number of unsuccessful attempts have been made to see Mr. Eisenhuth in New York, where his office is located.

One day last week Taylor declined to ride in a handicap and was forthwith suspended by the referee. The latter was a little hasty, for it developed next day that Taylor had been accorded permission to stay out of open events, except those for the championships, for a time, on account of the sickness from which he still claims to be suffering.

George W. Pfeffer, a Buffalo cycle dealer who was recently arrested, charged with having purchased at a nominal price, a number of machines which had been stolen by a school-girl, has been discharged. A number of witnesses testified to his good character and the judge thereupon expressed faith in his innocence.

G. A. Boyer, who has been nearly a year with John R. Keim, the bicycle parts and engine maker of Buffalo, is no longer with the concern, his resigna-

tion having been accepted three weeks ago. The people at the factory were busy recently taking inventory and preparing for another year's business.

The New York Central railroad, which is compelled by law to carry bicycles free in the state, has made a rate between outside points of 6 per cent. of the passenger's ticket, equivalent to 50 pounds of baggage. The minimum charge will be 25 cents.

Arthur Chase, the English rider, went after the mile unpaced flying start record a few days ago in London. He missed it by by 1 3-5 seconds, but broke the half-mile record by 1-5 second, making it in 57 3-5, and the ¾-mile by 3-5 second, in 1:29 3-5.

The American Bicycle Co.'s plant at Chicopee Falls, Mass., formerly the Lamb plant, which made Spalding bicycles, is to be closed for good. It has not been running since spring, and only about half a dozen men have been employed there recently.

The Maryland Bicycle Club, which still contains a great deal of cycling enthusiasm, has decided on a change of name to the Maryland Country Club. It has two club houses in town and country.

Major Taylor was refused accommodation at the Vanderbilt Hotel, Syracuse, last week, and threatens to sue for damages to his wounded feelings.

It is reported that Floyd MacFarland will go to Australia with Lawson and Green at the close of the season's racing in this country.

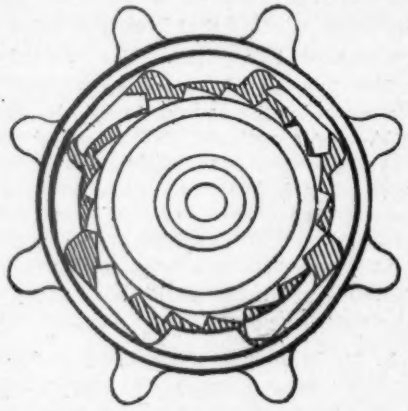
At Nantes on July 20, Jacquelin won the open race by half a length from Momo and Vanden Born.

At Verviers, on July 19, Vanden Born won the three heats of a three-cornered match between himself, Grogna and Broka.

The Wilhelm cycle factory, at Reading, Pa., is now in the hands of a committee of the board of trade of that city. It would make an ideal factory for some automobile maker.

### Upton's English Patent

An English patent has been granted to C. A. Allison, of the Upton Machine Co., on his variable speed gearing which is here illustrated. The object of this invention is to provide gearing in compact form with the parts in substantial



alignment, adapted to transmit motion in opposite directions, as required, from a main driver to the parts to be driven, and wherein the latter are permitted to have differential motion. In carrying out this invention a driving part of a pair of driven parts is provided, between which driving and driven parts are interposed gearing for producing rotation of the driven parts in the same direction as that of the driving part as well as in the reverse direction, and differential gearing adapted to permit the driven parts to rotate at different speeds in the same direction.

# INFORMATION FOR BUYERS AND BUILDERS

Hinsdale Smith, of the Automotor Co., of Springfield, Mass., who, as reported in a recent issue, made several sales of his vehicles during his visit to New York, gave a demonstration of what his vehicle can do to a representative of this paper recently. At his invitation an Age man spent a couple of hours with him traveling around the streets of New York. Some of the steepest hills in Harlem, such as those approaching Grant's tomb from the east, were negotiated without difficulty, although the machine was fitted with a 3½-horsepower motor.

The wagon is fitted with a De Dion engine and is prevented from stalling on steep hills by a clutch invented by Mr. Smith. This clutch is held in engagement by centrifugal force, so that when the speed of the engine falls below a certain point the clutch will be automatically thrown out. The power is transmitted to the rear axle by a chain, and when the high-speed clutch is in engagement no other transmission parts are in operation. The differential is of the spur wheel type. The transmission gear provides two speeds ahead and one reverse, and the other speed changes are effected by foot levers, one for each gear.

Hinsdale Smith on His Automotor.

The water cooling device is another of Mr. Smith's inventions. It consists of an upper and lower chamber of U form to fit in the bonnet and connected by a series of star shaped tubes of six arms, each one of which is connected to the other by wire gauze which increases the radiating surface considerably. This device has proved so successful that the company is contemplating putting it on the market for general sale.

The body of the vehicle is supported by two elliptical springs. The wheel base is exceptionally long. Owing to the arrangement of the motor in the front of the vehicle there is little vibration, in fact, when running, the machine moves as smoothly as a steam vehicle and with hardly more noise. Twenty-six-inch wheels are used and the whole vehicle weighs 700 pounds. The accompanying picture was taken by an Age man at one of the highest points on Manhattan Island.

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### Victories of the De Dion

The De Dion-Bouton Motorette Co. has issued a hanger showing the victories achieved by its vehicles. It is an imposing list and for the benefit of those who are not familiar with the performances of this remarkable motor is here given, together with the names of the winning chauffeurs:

1896: Paris-Nantes-Paris, Colomb; Paris-Marseilles-Paris, Viet.

1897: Paris-Bordeaux, Corre; Marseilles-Nice; Monter; Criterium (Montegron), Viet; Paris-Trouville, Teste; Paris-Coburg, Bardin.

1898: Paris-Roubaix, Degrais; Paris-

Perigeaux, Osmont; Marseilles-Nice, Osmont; Coupe-St. Germain, Marot; Paris-Amsterdam, Marcellin; Paris-Dieppe, Teste; Bordeaux-Biaritz, Bardin; Tourcoing-Bethune, Osmont.

1899: Marseilles-Nice, Teste; Paris-Roubaix, Osmont; Criterium, Teste; Paris-Bordeaux, Bardin; Tour de France, Teste; Paris-Trouville, Teste; Paris-Rambouillet, L. Renault; Nice-Castellane, Teste; La Turbie, De Maulne.

1900: Marseilles-Nice, De Maulne; Paris-Toulouse-Paris, Teste.

1901. Pau Tournament, Osmont; Pau Tournament, L. Renault; Paris-Bordeaux (1), Teste; Paris-Bordeaux (2), Osmont.

World's Fair Contest, Paris, 1900, up the Cote de Gaillon, won by De Dion quadricycle. Automobile Club of Great Britain's contest, 1900, up Shap Fell hill, won by a De Dion tricycle. Long Island Automobile Club's contest, April 20, 1901, up Roslyn hill, won by New York type De Dion motorette. New York Journal's century race, June 17, 1901, Long Island, won by De Dion tricycle. New England Automobile Club's races, Boston, Mass., June 17, 1901, motor tricycle contest won by a De Dion. Race for gasoline vehicles under 1,000 pounds, won by De Dion motorette. Race for gasoline vehicles between 1,000 and 2,000 pounds, won by Paris type De Dion motorette.

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### Dow's New Productions

The Dow Portable Electric Co., of Boston, has enlarged its line and is marketing a battery styled 88. It consists of eight cells, four on a side, each set averaging 6 volts, 10 to 12 amperes current, and so arranged with a switch that it can be used without drawing current from the other. When one set is run down to three amperes, the second set may be used and reduced to the same amount, after which the two sets may be banked, thereby raising the amperes to six. The whole battery may be run down to three amperes, reducing each set of cells to one and one-half amperes.

This battery, although out but a short time, is meeting with favor, because of its economy. The life of any battery depends on how it is handled by the user, hence it is impossible for makers to guarantee their product, except that it is as powerful as advertised at the time it leaves their hands. It therefore devolves upon the user to exercise care, to see that the switch is thrown out when current is no longer needed, and that the insulation is carefully attended to.

The company has also added a number of new coils, one of which, here illustrated, is of special form to meet the requirements of certain manufacturers. This coil, instead of having terminal wires, is provided with binding posts of brass, each having a set screw to prevent the tightening nuts from working loose. It, like all other standard coils made by the company, is put up in a hard fiber case. It is made in different sizes. The regular coils are provided with terminal wires, and for simplicity's sake are made with three terminals, unless otherwise ordered. This is especially valuable in motor cycles, where the fewer parts there are the better.


The No. 5 coil is somewhat smaller than the No. 3 listed in the company's catalogue, being shorter, but larger in diameter. It lists at a slightly lower figure. Double or triple coils, put up in one case, are also furnished on request, these being for use on engines having two or three cylinders. Four can be made as well and furnished with as many terminals as desired.

The company also offers new testing instruments, which may be carried in the pocket, one for testing voltage and the other amperage. Such instruments will show an operator of a gasoline vehicle the necessity of providing himself with a new battery power before starting on a run.

The P. J. Dasey Co., 160 Washington street, Chicago, is the Dow representative in the west, and carries a full line

of batteries, coils, etc., from which immediate deliveries can be made. Catalogues in relation to electrical ignition will be sent on request.

### Prices of Steam Vehicles

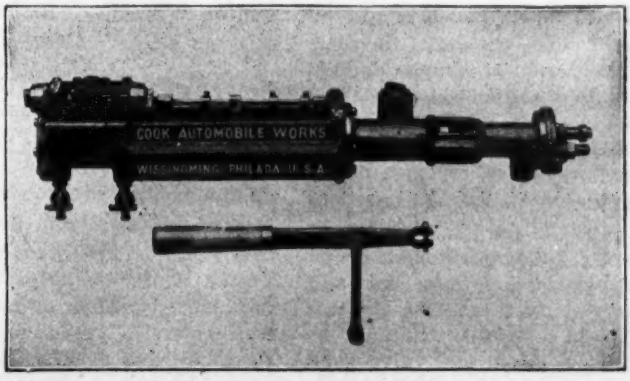
The Dayton Motor Vehicle Co. writes that the action of the Locomobile company will have no effect on its prices. Grout Bros. write that they have come to no decision in the matter of prices for next season. The makers of the Tractobile say they will not increase the price if they can make their facilities equal the demand. No maker has, so far, publicly announced its intention of following the lead of the Locomobile company, but the belief is generally expressed that the increased price means also a more valuable vehicle, devoid of some of the difficulties with which it has been necessary to contend in some of the earlier models.

### An Auto-Bi Enthusiast

The E. R. Thomas Motor Co. has received from E. F. Stewart, of Woodstown, N. J., a letter from which the following is copied: About four weeks ago I purchased one of your Auto-Bi motor cycles of your agent, Jos. Elwell, Bridgetown, N. J., and I feel it my duty, as well as a pleasure, to write and tell you how much I am pleased with the machine. I am a traveling man and have ridden the machine over 1,000 miles at the cost of about one dollar and without one moment's trouble or delay, and have not pedaled half a mile. I have ridden as much as 130 miles in one day, no push, no pull, no tired feeling. If I could not buy another $1,000 would not part us. A little care, mixed with a little common sense, is all that is needed, and there will be no trouble. If any one contemplating buying one of these machines will write to me, I will deem it a pleasure to answer any questions they may ask.

### An Auxiliary Pump

Every one knows all about the trouble of pumping air to the gasoline tank and water to the boiler of steam vehicles. The Cook Automobile Works, of Wissinoming, Philadelphia, Pa., has designed a pump to overcome them. It consists of a double-acting steam-operated pump which operates both a single-acting water and air cylinder. It will pump either air or water by hand when there is no steam, or it will pump either air or water by steam when the carriage is standing or running. It will also pump up tires. It sometimes occurs that when steam is wanted the water is not in sight in the water gauge and it is unsafe to start a fire. With the hand attachment of the Cook pump water can be pumped to the proper height in a short time. The air supply may also be low. With the hand attachment enough air can be pumped up in a couple of minutes to start the fire and to get up 20 pounds of steam, which is sufficient to start the pump. In 3½ minutes the reservoir will be filled and the gauge will show 40 pounds' pressure. The pump is operated, both for air and water, through a valve which can be reached



from the seat. If water is needed, the amount can be regulated either by the speed of the pump or the regular by-pass. The pump is not automatic. Steam must be turned on and shut off. In case the regular pump should be disabled, the Cook device will pump enough water. The company has a number in use and they are giving satisfaction.

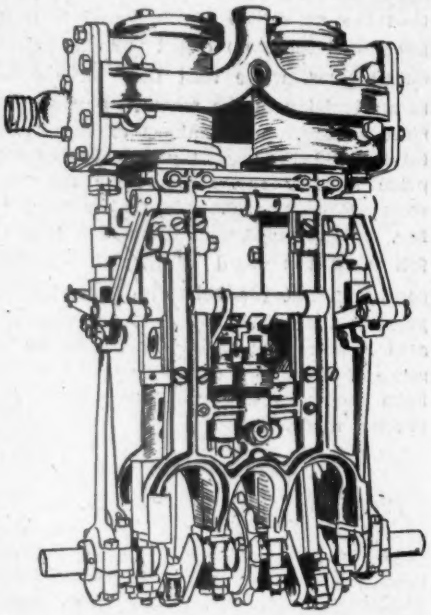
### Test of a Remington

At Utica driving park recently a large crowd witnessed a demonstration of the first complete Remington automobile exhibited in that city. The vehicle is the company's style C runabout. The demonstration consisted of a run around the track in 2:56, being an excellent showing for the carriage, in that everything was new, and an exhibition of the control the operator has over the movements of the vehicle. Running at about 15 miles an hour directly at a fence, the machine stopped within six inches of it and began to back away, much to the consternation of the spectators, who supposed that the carriage had gotten beyond the control of the operator. On the whole the exhibition was a successful one, marred by no accident save the jumping of the driving chain, owing to its being new and having stretched.

### The Milwaukee Ideal Engine

This engine is new in design, as it has larger bearings than the ordinary automobile or marine engine of the same size, and is constructed with two pumps, air and water, instead of one for water only. The engine develops 5 horsepower at 450 R. P. M., and is somewhat heavier than the ordinary 5-horsepower generally used. It is manufactured by the B. & P. Co., of Milwaukee, and was designed by H. A. Barnes, vice-president of the company. Mr. Barnes is an old engine builder, and has found, after years of experience, and particularly for the past two years, after having been constantly building automobile and marine engines, that the bearings and general construction of engines for this work have been altogether too light to stand the heavy strain and give good service after having been used from 12 to 18 months. Therefore he has designed the engine shown in the cut, and has found, after practical tests, that it is more satisfactory than one of lighter material.

The Ideal is vertical, direct acting, re-



versible, with two cylinders, 2½ inches in diameter by 3½-inch stroke. The crank shaft, with engine sprockets and eccentrics, is one single steel drop forging. The valves are operated by link motion. It is made of the best bronze and steel, each part accurately adjusted and interchangeable. The company is now turning out about 30 engines a month for automobile companies. The Milwaukee-Rice Machinery Co. will act as the distributor and K. Franklin Peterson, of 165 Lake street, Chicago, as exclusive sales agent.

### Troubles and Small Matters

Buffalo, Aug. 5.—One of the greatest detriments and drawbacks to the selling of automobiles and keeping them sold is lack of information in regard to running them. E. L. Ferguson, of the E. R. Thomas Motor Co., was asked what were the chief requisites of a purchaser of a motor bicycle. Ferguson replied: "A little knowledge of a motor and a lot of

common sense. These two things will fill the bill." Mr. Ferguson said that the greatest troubles his company had encountered were caused by minute difficulties. He referred especially to a case in New Jersey, where a man had taken out a little piece of cardboard, placed in the sparking device and had forgotten to put it back. That little trouble was the cause of a special trip to Jersey to put matters right. The little incident had disgruntled the purchaser and had probably prevented other sales in that town.

The old advice "Man, know thyself," should now read "Man, know thy automobile or motor bicycle." The Thomas company has decided to give illustrated lectures during the balance of the exposition. John Wanamaker runs a dissecting department in his automobile storage place and makes a charge of $1 per hour to show the complete workings of any machine. This, the wise old merchant of Philadelphia argues, makes customers.

### Whiteley's Crown Steel

The Whitely Steel Co., Muncie, Ind., is preparing to supply the automobile trade with all forms of castings made from Whitely steel. The company produces a grade of castings that, so far as has been learned, has not been duplicated in the matter of ease of machining and fineness of grain.

Whiteley Crown steel is a pure metal manufactured from special brands of imported stock, carefully prepared to secure a uniform analysis, treated and purified in a furnace by the Whiteley process, producing a clean, solid, homogeneous metal of great strength. It has been submitted to the severest tests by government mechanical engineers, also by the mechanical experts of a large number of leading manufacturers, and the result is that they are now using it largely in the manufacture of pneumatic tools, automobiles, electric motors, gas engines, crank shafts and connecting rods, high grade bicycle fittings, and for special tools and machines where extra strength is required.

The castings are made true to pattern in the form required, leaving only stock sufficient for machining, and are nicely finished with smooth surface, free from shrinks, blow holes or hard spots; the purity of the metal and the accurate form of the fittings reduce the weight and expense of both labor and tools in machining and finishing the parts.

Threads can be cut on this steel as sharp and smooth as ordinary annealed tool steel. It is also susceptible of receiving a high polish not readily distinguishable from nickel plating. This steel may be tempered by heating and dipping it in water, the same as ordinary tool steel. It can also be readily casehardened. It is tough, and almost impossible to break by bending or twisting. Its tensile and transverse strength is stated to be greater than either drop forgings or open-hearth steel castings.

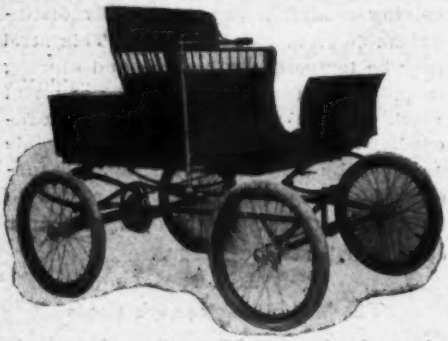
### The Whitney Company's Goods

The Whitney Mfg. Co., Hartford, Conn., has placed a number of its milling machines, grinders and chains among automobile makers and has introduced the Woodruff patent system of keying with success. This company played an important part in the bicycle industry by the introduction of automatic machines which made cheaper production possible, and in the production of bevel gear cutting machinery. The reputation of the past will no doubt hold in the new industry, and it is safe to say that whatever the company produces will be well worth investigation. Some of the articles produced are hand milling machines, a 20-inch water tool grinder, wheel truing device for water tool grinder, vises, spring collets and arbors for milling machines, keys and cutters for the Woodruff system of keying, Presto drill chucks and collets, and chains for bicycles, machinery and automobiles. The chains are the result, like all the rest of the line, of years of experience. The company is now producing a line of single roller chains which it claims will be eventually adopted as standard.

### Equipment Minus Power

The illustration represents one style of automobile equipment, less power, manufactured by Shaeffer, Bunce & Mar-

vin, Lockport, N. Y. It shows a No. 2 running gear fitted with metallic body, the back panels of which are removable to allow the machinery to be installed, and wire wheels with 28x2½-inch or 3-inch tires. The spokes used are of the best material, each wheel containing 40 3-16-inch spokes. The gear is richly enameled and all small parts nickel-plated. Side steering device and equal-



izing gear of standard make are provided. The tubing is 13 and 14 gauge and is used in straight lines, not in arches, as is commonly the case. The makers believe that the tube in straight lines will stand more strain. Around the equalizing gear is a round tube of 12 gauge. This is the only part of the gear in which the tube is bent. The back axle is carried on four sets of ball bearings, each set containing 14 ⅝-inch steel balls. The hubs are heavy, the spoke line being extra wide to make a stiff wheel. The springs are 1¾ inch wide, 36 inches long, 7½ and 8½ inches open. All body loops are made of machinery steel forgings. The firm's object of placing this style of carriage on the market was to furnish a substantial gear that will withstand the usage given it by amateurs who are experimenting with new motors. The firm also makes a compound and duplex engine for automobile use, these being made strong and substantial to withstand long and constant usage.

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Persons who contemplate the establishment of factories and are seeking locations might save time and trouble by applying to William B. Hunter, industrial agent of the Lackawanna Railroad, whose office is at 26 Exchange place, New York, for a copy of the work entitled Industrial Opportunities, recently issued. It contains details of the towns along the road, populations, taxation, cost of labor, value of land, vacant factories, leading industries, and, in many cases, special inducements offered to industries to locate.

For the purpose of delivering a machine to a Chicago customer, Elmer Apperson, of the Haynes-Apperson Co., left Kokomo, Ind., last Sunday morning at 5 o'clock, with a friend, in one of the company's latest machines, and arrived in Chicago at 6 o'clock in the evening, having covered 205 miles, according to the odometer, in 13 hours, an average of nearly 16 miles over indifferent roads. This ride is supposed to constitute a record between the two cities. The machine was delivered to the purchaser one hour after arrival, in perfect condition.

The Brown & Sharpe Mfg. Co., has just issued a little work, called A Handbook for Apprenticed Machinists, in which are found a great many matters of interest to the beginner and to the skilled workman. It starts with the most elementary propositions and runs through the hints of greatest value to the beginner before taking him into the more advanced problems of mechanics. It contains tables of interest to the automobile trade, including one of French or metric measures. The book may be obtained of newsdealers, or of the company, at 50 cents.

The Mianus Motor Works, Mianus, Ct., in a new and attractive catalogue, illustrates and describes its line of two-cycle gasoline motors and launches. This concern has for a number of years past been manufacturing motors suitable for either stationary or marine work and has succeeded in making them well known along the Atlantic coast. The motor is made in 2, 4 and 6-horsepower sizes, while launches are turned out in 17, 21, 25, and 30-foot lengths. The factory is located on the Mianus river, 30 miles from New York.

The Bantam Mfg. Co., of Bantam, Conn., is producing a roller bearing suitable for carriages and trucks that is

winning favor throughout the trade in that class of vehicles, and intends in the near future to cater to automobile manufacturers. The company is now somewhat behind in filling orders, but will increase the capacity of the plant especially for the production of such bearings as are needed in automobiles. The illustration shows the form of construction.

W. G. Crowell & Co., Bridgeport, Conn., are turning out castings of manganese aluminum for automobile parts, and are making a specialty of automobile work. Their castings, they say, are hard, tough, strong, yet easy to machine. Beside the castings mentioned they cast brass, bronze, both in phosphor and vulcan, copper, composition and gun metal. Anti-friction metals of all descriptions are also supplied.

The Kirk-Latty Mfg. Co., Cleveland, has just issued and is now mailing a new catalogue to the trade. It is of interest to makers of automobiles inasmuch as it gives details of special screws, nuts, bolts, rods and many other articles which they use. The company is about to let a contract for extensive additions to a part of its factory and offices which will give it 275x50 additional space.

Ellicott Evans, with whom is associated Dr. Truman J. Martin, president of the Buffalo Automobile Club, has opened a first-class storage and repair place on North street, Buffalo. Mr. Evans is agent for the famous Packard gasoline carriage. The place is situated in a fine residence part of the town, is central and is thoroughly equipped for charging electrics and with supplies for gasoline and steam vehicles.

The Searchmont Motor Co. has opened a New York depot at 50 West Forty-third street. William H. Maxwell, Jr., of New York city, has been placed in charge of the company's business in that territory. The company has also opened a branch store at 204 North Broad street.

Philadelphia, where it has on exhibition 12 of its wagons. It is also using this as a repository and storage station.

Tom Henderson, who graduated with H. C. Martin, of Buffalo, is recognized as one of the best of traveling salesmen and this year sold a lot of bicycles for the Day Mfg. Co. Tom is a canny Scotchman and is at present at the National Bicycle Co.'s stand at the exposition and is paying attention to that firm's exhibit and that of the Universal Coaster Brake Co.

Mohler & Degress, of Albert street, Astoria, N. Y., are building 5½ indicated horsepower motors, made of the highest grade material, for $160. The firm has an eight-tube cooling coil of its own design which is being used by several manufacturer and which sells for $25. A gear speed device is another specialty, and sells at $60.

For the last 43 years the Wallace Barnes Co., Bristol, Conn., has been in the spring manufacturing business. The company states it is in the field for business and will be pleased to receive samples and make quotations on all forms of small springs that may be used in automobile or bicycle construction.

A. L. Dyke, of the Linmar building, St. Louis, has put out a lot of interesting printed matter lately. His latest is a wall list, well printed on heavy stock, which shows at a glance nearly all of the goods he handles. It will prove a handy work of reference to all interested in the automobile trade.

The Columbia Lubricants Co., of New York, is undoubtedly doing good work in establishing stations all over the east. Its goods are of the best quality and comprise nearly anything a touring automobilist requires. The latest to take an agency is the Buffalo Automobile Exchange, located on North street.

The Locomobile company has a well qualified representative in F. M. Peckham, manager of the Buffalo branch. Peckham, before undertaking to manage a branch, took a course at the factory, and familiarized himself with the details of construction. Peckham is still young, pleasant and a good salesman.

The American Die and Tool Co., Wil-

mington, Del., although not directly in the automobile business, is making a number of parts for the trade from drawings and samples and is in a position to give all matters of this kind prompt attention.

Mr. Converse, of the Worcester Furrule Stamping Co., states that his company is building up trade in stampings for the automobile trade. The company is also having a big demand in the bicycle stamping department for 1-inch one-piece heads.

The American Ordnance Co., of Bridgeport, Conn., manufactures automobile engines from drawings furnished by customers, in large numbers. Its facilities are such that it is able to take care of a lot of work in this line.

Motor Age would be pleased to receive photographs and full descriptions of all vehicles intended to take part in the New York to Buffalo endurance test.

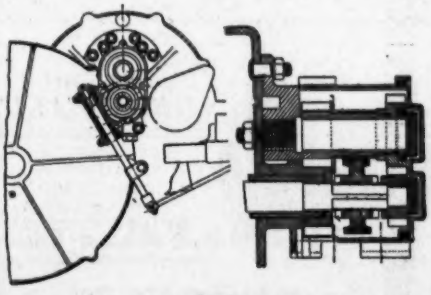
The Fisher Motor Vehicle Co., at present located in New Jersey, seeks a location and promises to employ 500 hands.

It is announced that the Milwaukee Automobile Co. will increase the price of its vehicles $100.

It is reported that E. G. Nellis, of Auburn, N. Y., will operate an automobile livery there.

### To Discard Chains

To do away with all chain mechanism for transmission of power between motor and axles, together with all its attendant disadvantages, inventor F. J. Stallings



substitutes motor driven eccentrics and driving rods operatively connected to the vehicle wheels. The invention relates to a gearing for automobiles or other vehicles, and consists of the combination with a framework, a main driving shaft having eccentrics at either end thereof, and boxings secured to the hubs of the vehicles, wheels and eccentrics secured to said boxings whereby to revolve the wheels, and rods connecting the eccentrics for communicating motion from one set to the other.



## MISCELLANEOUS

Advertisements under this head 5 cents per word first insertion; 3 cents per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

## FOR SALE

FOR SALE—The Automobile Storage and Repair Co., 57 West 66th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some spec al bargains. *

FOR SALE—Winton automobile, fall 1900 model, in good order, $800. Will teach purchaser to operate and accompany him home. F. E. LOW, Stubenville, Ohio. *

NO. 2 LOCOMOBILE, first-class condition $485.00; No. 2 Locomobile, almost new, been run 75 miles, $650.00; brand new "Locosurrey," $1,075; Orient quad, $300. I personally guarantee all the above. In stock ready for immediate shipment. A. L. DYKE, Auto Supplies, office Linmar Bldg., St. Louis, Mo. *

BICYCLE BUSINESS FOR SALE—Established five years, good business and no opposition. Will sell reasonable, want cash. G. H. R., Motor Age, 150 Nassau St., New York. 1

FOR SALE—Mobile, Victoria top, fenders, cyclometer shows 333 miles, not a scratch, boiler never burned. Owner has purchased an electric for his family. FISHER CYCLE & AUTOMOBILE Co., Agents, Indianapolis, Ind. 1

"LOCOMOBILE" for sale. 1900 Model with top, lamps and tools complete. Is in perfect coudition, enamel is just like new; has been run only a short time. Reason for selling, I have two and don't want only one. Cost $900 will sell for $550. A. G. SETTER, Collins Centre, N. Y. 1

## WANTED

AGENTS WANTED, to purchase second-hand bicycles. Address INTERNATIONAL BICYCLE CO., Shanghai, China. 13

# Catalogue Department

THE MOTOR AGE has established a catalogue department and will forward the catalogues of any or all advertisers on request.

The objects of this department are as follows:

1. To save the reader the trouble and expense of writing to each individual concern whose catalogue he may need.
2. To place advertisers in direct communication with prospective purchasers.

Applicants for catalogues will please state specifically the names of the concerns whose catalogues they desire and enclose stamps to cover postage.

*Applications should be addressed* to the Catalogue Department, MOTOR AGE, Monon Building, Chicago.

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**Tickets Include all Expenses Everywhere.**

Train leaves Chicago via Chicago, Milwaukee & St. Paul R'y., Tuesday, July 9, 10:00 p. m.

## NEW WABASH EQUIPMENT.

The Wabash Railroad has just received and placed in service on its lines running out of Chicago the following new equipment:

Eight combination baggage and passenger coaches, thirty palace day coaches, ten reclining chair cars, three cafe cars and two dining cars. The majority of these new cars are seventy feet in length, and fitted with the latest style wide vestibules. They have six-wheel trucks with steel wheels. The cars are finished in the finest selected Jago mahogany. The lighting is by Pintsch gas with the exception of the cafe, dining and some of the chair cars, which are unusually well lighted by electricity, the fixtures being especially designed for these cars. The dining cars will seat twenty-nine persons and have ample kitchen space. The cafe cars will seat eighteen persons in the cafe, and have a library and smoking room in the observation end of the car which will seat fourteen persons. These cars also contain a private cafe with seating capacity for eight persons. These new cars represent the highest stage of the development of modern car building. Nothing has been omitted and no expense spared that would add to their luxurious elegance, or to the comfort and convenience of the patrons of the Wabash road.

No line is now better equipped than the Wabash for handling business to the Pan-American Exposition. Write for a copy of Pan-American folder containing a large colored map of the exposition grounds and zinc etching of the principal buildings.

F. A. PALMER,
Asst. Gen. Pass. Agt., Chicago, Ill.

# Faster than ever to California

## CHICAGO & NORTH-WESTERN RAILWAY

THE OVERLAND LIMITED leaves Chicago 6.30 p. m. daily via Chicago-Union Pacific and North-Western Line, arrives San Francisco afternoon of third day and Los Angeles next morning. No change of cars; all meals in Dining Cars. The Pacific Express leaves 10.30 p. m. daily. Personally conducted excursions every Thursday from Chicago and every Wednesday from New England. Inquire of any ticket agent or address

461 Broadway, New York; 601 Chestnut St., Philadelphia; 368 Wash'ngton St., Boston; 301 Main St., Buffalo; 212 Clark St., Chicago; 435 Vine St., Cincinnati; 307 Smithfield St., Pittsburg; 234 Superior St., Cleveland; 17 Campus-Martius, Detroit; 2 King St., East, Toronto, Ont.

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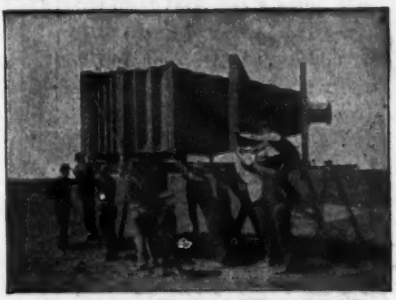

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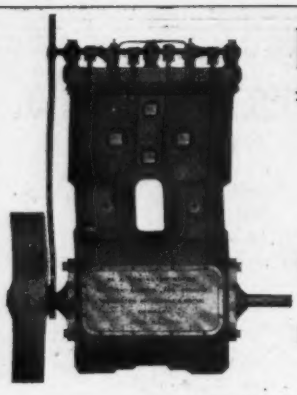

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FOR LAUNCHES NONE BETTER
FOR AUTO'S FEW COMPARE

A Good Motor with a Good Name

SIMPLE, QUIET, PRACTICAL

REMINGTON AUTOMOBILE & MOTOR CO., - Utica, N. Y.
Write us for catalogue of complete automobiles.

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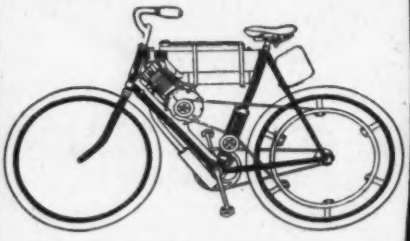
THE

# AUTO-BI

**Is the original of them all and not a copy.**

It has the best mixer ever devised. The motor is carried in its own bed. The electric circuit is absolutely simple. The battery can be renewed anywhere. Gasoline for 60 to 80 miles. Lubricating oil for 150 miles. Controlled by one small lever.
**SPEED**—Any desired.



PRICE $200

E. R. THOMAS MOTOR CO., (Inc.)
103 Broadway - - - - Buffalo, N. Y.

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They are so resiliant that they absorb all jar and vibration—yet are strong enough to insure long wear and satisfaction.

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